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The Treatment of Exophthalmic Goiter with Radioiodine

MAVIS P. KELSEY, SAMUEL F. HAINES and F. RAYMOND KEATING*

MAYO CLINIC, ROCHESTER, MINNESOTA

RADIOIODINE has been used more extensively in clinical medicine than any of the other isotopes that have been studied thus far. Fermi first produced this isotope in 1934. In 1937, Hamilton in California, and Hertz, Roberts, and Evans in Massachusetts began experiments which led to the use of this substance in the treatment of hyperthyroidism. In 1942, Hamilton and Lawrence and Hertz and Roberts made preliminary reports on the use of radioiodine in the treatment of patients who had thyrotoxicosis. The last authors reported the use of this isotope in 10 cases. Hamilton, Soley, and Eichorn observed that the administration of large doses of I^{131} to animals caused marked destruction of the thyroid gland while other tissues remained normal. By using relatively smaller doses of I^{131}, Hamilton and Lawrence obtained a remission of symptoms in 3 cases of thyrotoxicosis.

Further work on radioiodine was then delayed by World War II. No more reports on this subject appeared until 1946, when Hertz and Roberts reported 29 cases of exophthalmic goiter in which the patients were treated with a mixture containing 90 per cent of I^{130} (half-life, 12.6 hours) and 10 per cent of I^{131} (half-life, eight days). Remission of the hyperthyroidism occurred in 20 of the 29 cases (Table 1). The small dose of radioiodine used in these cases and the subsequent administration of ordinary iodine made evaluating results difficult.

In 1946, Chapman and Evans reported 22 cases of hyperthyroidism in which the patients were treated with larger doses of this mixture of radioiodine. No other drug was administered in these cases. Means recently said that Chapman subsequently administered this mixture in 43 additional cases of hyperthyroidism. Remission of symptoms occurred in 46 of the total of 65 cases of hyperthyroidism in which radioiodine was administered by Chapman or by Chapman and Evans (Table 1). No mention was made of recurrences. Hypothyroidism occurred in 11 of the 65 cases and thyroid was administered. In the 8 remaining cases, the patients were improved but still had symptoms of thyrotoxicosis. In 5 of these 8 cases, I^{131} was administered later. Means said that Chapman also administered I^{131} in another series of 48 cases of exophthalmic goiter and had followed the patients long enough to observe satisfactory response in 36 and only partial response in 12. The brief report made no mention of myxedema in the group which was given I^{131}.

In 1948, Soley and Miller reported 33 cases of exophthalmic goiter in which follow-up data were obtained for periods of from three months to two years after I^{131} was administered in divided doses. The results were classified as good in 25 of the 33 cases and as unsatisfactory in the 8 remaining cases (Table 1). In the 8 cases in which the results were unsatisfactory, the goiters generally were

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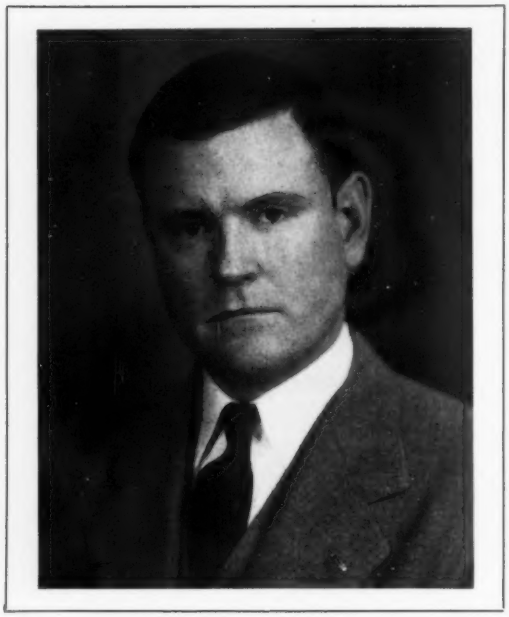

MAVIS P. KELSEY

larger than the goiters in the 25 cases in which the results were good. The thyrotoxicosis was more severe in the 8 cases in which the results were unsatisfactory. It was apparent that the doses of I^{131} were too small in the latter group of cases. The authors did not mention the development of myxedema in any of the cases.

Williams, Jaffe, Rogers, Towery, and Tagnon reported 83 cases of hyperthyroidism in which the patients had been followed long enough to permit an evaluation of the immediate results of treatment with radioiodine. All were relieved of hyperthyroidism and 4 became myxedematous (Table 1). The additional use of thiouracils and iodine made the results difficult to evaluate. Werner, Quimby, and Schmidt obtained satisfactory results in 30 of 34 cases (Table 1).

When this paper was written, we had administered I^{131} in 69 cases of exophthalmic goiter and had observed 55 of the patients long enough to evaluate the results. Forty of these 69 cases have been reported previously by Haines, Keating, Power, Williams, and Kelsey.

In spite of the difficulty of comparing the data summarized in Table 1, it is obvious that the results of treatment were satisfactory in a large percentage of the 347 cases. Most of the failures appear to have been due to the administration of inadequate doses of radioiodine. Myxedema occurred in 34 (9.8 per cent) of the 347 cases.

BASIC KNOWLEDGE OF RADIOIODINE

There are 13 or more artificial isotopes of iodine, and all of them are radioactive. Today, I^{131} is used almost exclusively at the several centers in America where studies with radioiodine are being made, since it is available at about $1.00 per millicurie from the Atomic Energy Commission, Clinton Laboratories, Oak Ridge, Tennessee. I^{131} is made in the atomic pile by neutron bombardment of tellurium. It has a half-life of eight days. I^{131} disintegrates by emitting beta particles and gamma rays to become inert and harmless xenon. The beta particles provide the greater part of the radiation effect while the gamma rays produce little radiation effect before they pass out of the body. The effect of the beta particles is confined almost exclusively to the tissue containing the isotope, since beta particles travel at most only a few millimeters in tissue.

Radioiodine is absorbed rapidly from the stomach, and most of a dose usually appears in the circulation within an hour.[2,15-17] The thyroid has a great affinity for radioiodine, and 1 gm. of thyroid tissue can concentrate 10,000 times as much of this isotope as the normal concentration in 1 cc. of blood. Of the other isotopes that have been made thus far, none is concentrated so heavily in one tissue.

The emanations from radioiodine cause the same changes in tissue as do radium emanations or roentgen rays. In the therapeutic use of roentgen rays, the radiation dose is commonly reported in roentgens. The dose of radioiodine may be expressed in roentgen equivalents. Approximately 160 roentgen equivalents are delivered to the thyroid gland when the initial concentration of I^{131} is 1 microcurie per gram of thyroid and provided all of the isotope remains in the gland.[18,19] Radioiodine administered orally can deliver a much greater amount of radiation to the thyroid than is possible with roentgen rays or radium, the doses of which are limited by radiation damage to tissues other than the thyroid, particularly the skin. A total of 6,000 to 12,000 r. can be given with radium or roentgen rays, while

TABLE 1

RESULTS OF TREATMENT OF EXOPHTHALMIC GOITER WITH RADIOIODINE

AUTHORS	CASES*	SEX		ISOTOPE EMPLOYED	RANGE OF TOTAL DOSE, MILLICURIES	NUMBER OF DOSES			RESULTS			
		MALES	FEMALES			1	2	3	GOOD	FAIR	POOR	MYXEDEMA
Hertz and Roberts	29	6	23	I^{130}†	0.7 to 28	17	10	2	20		9	
Chapman and Evans, and Chapman	65			I^{130}†	15 to 147	60	5		57	8		11
Chapman	48			I^{131}	4 to 14	45	3		36	12		
Soley and Miller	33	3	30	I^{131}	0.8 to 9.1	Multiple			25		8	
Williams, Jaffe, Rogers, Towery, and Tagnon	80			I^{131}	8.5‡	1 to 6			80			4
	3			I^{130}†	25 to 30	3			3			
Werner, Quimby, and Schmidt	34	14	26	I^{131}	2.9 to 8.6	27	7		30		4	4
Haines, Keating, Power, Williams, and Kelsey	55	15	40	I^{131}	2.6 to 20	45	9	1	45	6	4	15

*This table includes only cases in which adequate follow-up data were obtained.

†The I^{130} administered actually was a mixture which usually contained 90 per cent of I^{130} and 10 per cent of I^{131}.

‡Approximate dose.

more than 50,000 roentgen equivalents can be administered to the thyroid in a single dose of radioiodine.

Normally, the thyroid will concentrate 15 to 30 per cent of a dose of radioiodine (Table 2), and 50 to 75 per cent of the dose is excreted in the urine within forty-eight hours.[16, 20, 21] About 10 or 15 per cent of the dose is collected by tissues other than the thyroid. Usually, 2 per cent or less of the dose is excreted in the stools.[16] In cases of exophthalmic goiter the thyroid usually will concentrate from 40 to 85 per cent of the dose while 5 to 50 per cent will appear in the urine. The thyroid gradually secretes the collected radioiodine as a part of thyroid hormone but probably not more than 25 per cent of the therapeutic radiations are lost from the thyroid in this manner.

TABLE 2

DISTRIBUTION OF RADIOIODINE 48 HOURS AFTER ITS INGESTION

DISTRIBUTION	PER CENT OF INGESTED DOSE	
	IN NORMAL PERSONS	IN CASES OF EXOPHTHALMIC GOITER
Thyroid gland	15 to 30	40 to 85
Urine	50 to 75	5 to 50
Other tissues, sweat, expired air, and stools	10 to 15	10 to 15

DOSAGE OF RADIOIODINE

RADIOIODINE may be administered for hyperthyroidism in multiple small doses or in a single large dose. Soley and Miller administered an initial dose of 2,000 microcuries and subsequently gave 2,000 microcuries each month until a satisfactory response was obtained. With multiple doses, it is easier to determine the proper total dose, which should not be too small to be effective or large enough to produce myxedema. Avoidance of myxedema is especially desirable in young patients. The disadvantages of multiple doses are many biophysical measurements, many return visits by the patient, and very slow recovery from hyperthyroidism. Some of Soley and Miller's patients were observed for more than a year before they became normal.

A single large dose may be simply an empiric quantity of radioiodine. The optimal single dose depends on several factors, including the physical

properties of the radioiodine used, the desired concentration of radioiodine within the thyroid, and the rate at which the isotope is lost or secreted from the thyroid.[19] Chapman and Evans, by calculation of these factors, arrived at a dose for a mixture of I^{130} and I^{131}. Figures used for the amount of radioiodine collected and retained by the thyroid were taken from Hertz, Roberts, and Salter's iodine retention curves and urinary excretion studies. The weight of the thyroid was estimated after careful palpation of the neck.

I^{130}, which has a half-life of 12.6 hours, delivers 99 per cent of its radiation within three and a half days, during which time very little of the radioiodine is secreted from the thyroid. I^{131}, on the other hand, delivers 99 per cent of its radiation within fifty-two days, during which time a considerable amount of the isotope is secreted from the thyroid. When radiation is delivered more slowly, a larger total number of roentgens is probably needed to produce the same therapeutic result. This slow release of radiation by I^{131} led us to give larger roentgen-equivalent doses of I^{131} than the roentgen-equivalent doses of I^{130} given by Chapman and Evans.

To obtain the desired therapeutic effect, we have attempted to make an accurate determination of the dose required for each patient. We found that estimation of the weight of the thyroid by palpation of the neck is a very inaccurate procedure, and that errors as great as 100 per cent may occur in such cases in which examination is made by the most experienced observers. There is also great individual variation in the percentage of a dose of radioiodine taken up by the thyroid gland in various cases of toxic goiter.

Therefore, instead of using an arbitrary figure of thyroidal uptake of radioiodine, based on studies of other patients, we have performed a tracer study on each patient. Determination of the percentage of a therapeutic dose of radioiodine that is excreted in the urine within seventy-two hours after its administration furnishes a rather accurate index of the percentage of the dose that will be collected by the thyroid. In all but 2 of the 69 cases, the percentage of the therapeutic dose that was excreted in the urine in seventy-two hours was approximately the same as the percentage of the tracer dose that was excreted in the same time.

The first patients treated received a single dose which allowed the thyroid to collect approximately 100 microcuries of I^{131} per estimated gram of tissue. We soon found that this dose was not large enough for the type of patients we were treating. We, therefore, increased the dose to 200 to 250 microcuries per estimated gram of thyroid tissue. The dose was calculated by the following formula:

$$\frac{\text{Microcuries desired per gram of thyroid} \times \text{estimated weight of thyroid in grams} \times 100}{\text{Per cent of } I^{131} \text{ tracer collected by thyroid}}$$

The following example is presented: The thyroid is estimated to weigh 30 gm. Twenty-five per cent of a tracer dose of I^{131} is excreted in the urine in seventy-two hours. Arbitrarily, 75 per cent of the dose may be said to be collected by the thyroid. The dose is:

$$\frac{250 \times 30 \times 100}{75} = 10{,}000 \text{ microcuries of } I^{131}.$$

The dose actually delivered to the thyroid is probably 10 to 15 per cent smaller than the urinary excretion would indicate since the formula does not take into account the radioiodine collected by other tissues (Table 2). Furthermore, the formula does not take into account the gradual loss of the dose of radioiodine from the thyroid by its secretion as thyroid hormone. If these 2 factors are considered, the dose retained by the thyroid is about 30 or 40 per cent less than the calculations indicated. The successful dose is in the range of 15,000 to 30,000 roentgen equivalents. This is much larger than the doses administered by other investigators. For this reason, we have had fewer failures or recurrences of hyperthyroidism and more instances of myxedema following treatment.

Our patients have probably required such large doses because most of them had intractable recurrent goiters or serious heart disease, and we were striving for the maximal tolerable dose and for rapid control of hyperthyroidism. Soley and other authors have correctly striven for the minimal dose effective in their young patients with uncomplicated exophthalmic goiter.

INDICATIONS FOR THERAPY WITH RADIOIODINE

During the past two years we have used radioiodine in treating 69 patients with exophthalmic goiter. Until widespread experience has dispelled the fear of radiation injury by radioiodine,[23,24] we shall limit its use to older patients, especially those beyond the childbearing age and to those who are poor surgical risks (Table 3). In many of the cases, more than 1 indication for the

TABLE 3

INDICATIONS FOR ADMINISTRATION OF RADIOIODINE IN 69 CASES OF EXOPHTHALMIC GOITER

INDICATIONS	CASES
Recurrence after thyroidectomy	49
Heart disease	35
Paralysis of vocal cord	10
Small thyroid gland	7
Patient's request	5
Failure to respond to administration of ordinary iodine	4
Prolonged severe thyrotoxicosis	2
Rheumatoid arthritis	2
Malignant lesion elsewhere in body	2
Sensitivity to iodine (exfoliative dermatitis and jaundice)	1
Old cerebrovascular lesion	1
Agitated depression	1
Asthmatic bronchitis	1
Multiple sclerosis	1

administration of radioiodine was present. The ages of the patients ranged from 19 to 73 years, and the average age was 51 years. We have administered radioiodine to a few younger patients who were poor risks for operation. In spite of our care in selecting patients for treatment with radioiodine, we administered this isotope to 1 woman who later became pregnant. She subsequently gave birth to a normal baby.

In 49 of the 69 cases, the hyperthyroidism had recurred once or more after thyroidectomy had been performed. Of the 49 patients who had had a recurrence of hyperthyroidism after thyroidectomy had been performed, 32 had had 1 recurrence, 10 had had 2 recurrences, 5 had had 3 recurrences, 1 had had 4 recurrences, and 1 had had 5 recurrences. In these 49 cases, the administration of radioiodine was considered to be particularly indicated if the thyroid gland had been resected on more than 1 occasion, if paralysis of either vocal cord was present, or if extremely small amounts of thyroid tissue still were present.

Heart disease was present in half of the 69 cases. The heart disease usually was severe. Although the hypertensive, arteriosclerotic, and rheumatic types of heart disease were encountered most frequently, myocardial infarction, angina pectoris, or congestive heart failure was present in several cases. In only 2 or 3 cases was the thyrotoxicosis the sole cause of the heart disease.

In 2 cases in which the thyrotoxicosis was severe and had been present for several months, the patients were emaciated and had jaundice and diarrhea. Several weeks of preoperative treatment would have been required in these cases. In 1 case, the patient had rheumatoid spondylitis and a rigid neck which was fixed in flexion. Considerable difficulty would have been encountered in performing thyroidectomy in this case. In 2 cases, thyroidectomy was contraindicated because of the presence of a malignant lesion. A recurrent tumor of the brain was present in 1 of these cases; a carcinoma of the rectum in the other. In 1 case, extremely severe exfoliative dermatitis had developed after the administration of ordinary iodine. The amount of iodine in the therapeutic dose of radioiodine was so small that it was well tolerated.

RESULTS

In 55 of the 69 cases, the patients were followed from four to twenty-four months, or long enough to permit us to evaluate the results of treatment with radioiodine. In 51 of the 55 cases, there was a remission of the hyperthyroidism (Table 4). The remission was evidenced by disappearance of all of the symptoms and by a reduction of the basal metabolic rate to +15 per cent or lower (Table 5). Before the administration of I^{131} was started, the average basal metabolic rate in these 51 cases was +37 per cent and, when the patients were last examined at the clinic, the basal metabolic rates averaged zero. One dose was sufficient in 41 cases, 2 doses were required in 9 cases, and 3 doses were administered in 1 case (Table 4).

In 6 of the 51 cases in which a remission occurred, the hyperthyroidism recurred in from three to twelve months after the administration of the initial dose of radioiodine (Table 4). In 1 of these 6 cases, the administration of another dose of radioiodine produced relief; in 3 cases, the administration of strong solution of iodine proved effective. In the 2 remaining cases, the patients have left our care.

Iodine was administered as a precautionary meas-

ure in several cases, although it might not have been necessary.

Myxedema developed in 15 of the 51 cases in which a remission occurred (Table 4). The results in these cases have been classified as satisfactory because the patients are better off with properly treated myxedema than they previously were with the hyperthyroidism. In some cases, we actually have attempted to produce myxedema and thus prevent the future recurrence of the hyperthyroidism.

In 4 of the 55 cases in which follow-up data were available, the results were unsatisfactory (Table 4). In 1 of these cases, the patient was treated soon after we had begun to use this isotope. In the light of our subsequent experience, the dose of the isotope that was administered in this case was too small. The patient refused further treatment. In the 3 remaining cases, it was difficult to evaluate the diagnosis of the hyperthyroidism or its response to treatment. Actually, the results of treatment with radioiodine depend on the estimation of the proper dose. If the first dose proves to be too small, one can administer a second dose large enough to destroy the hyperplastic thyroid tissue.

In the 51 cases in which the results were satisfactory, the total dose of the isotope ranged from 2,600 to 20,000 microcuries, and the average dose was approximately 8,000 microcuries (Table 4). In the 41 cases in which the hyperthyroidism was controlled by a single dose of radioiodine, the number of microcuries of the isotope collected by the thyroid gland per gram of weight ranged from 88 to 570, and averaged 252. In the 9 cases in which a second dose of radioiodine was required to control the hyperthyroidism, the average initial dose of radioiodine was smaller than it was in the 41 cases in which a single dose proved effective, but there was almost complete overlapping of the largest and smallest number of microcuries of the isotope collected by the thyroid per gram of weight in the 2 groups of cases, just as there was in the 15 cases in which myxedema developed (Table 4).

This variability in response to similar doses of radioiodine per gram of thyroid tissue has 4 possible causes, all of which may play a part. First, the error in estimating the weight of the thyroid may cause an error in the calculations of dose. Second, since there is a patchy retention of radioiodine by the thyroid in cases of exophthalmic goiter,[25] some areas in the gland may not be exposed to an adequate dose of radiation. Third, the severity of hyperthyroidism may alter the required dose. The patients requiring 2 or 3 doses had an average basal metabolic rate of +50 per cent as compared with +35 per cent for patients whose hyperthyroidism was controlled by one dose (Table 5). Fourth, there may be a variable individual response of tissues to the same dose of radioiodine.

CLINICAL RESPONSE TO ADMINISTRATION OF RADIOIODINE

In some cases, tenderness, increased firmness, or slight swelling of the thyroid develops in from two days to a week after the administration of radioiodine. This may be an early sign of good response to treatment. It has been reported that during the first two or three weeks after the administration of the isotope there may be a temporary exacerbation of thyrotoxicosis and an increase in the basal metabolic rate attributable to increased release of thyroid hormone by irradiated tissue.[8] We have given strong iodine solution to a very few seriously ill patients at this time partially to alleviate thyrotoxicosis until radioiodine has had its effect. For this reason, Williams, Jaffe, Rogers, Towery, and Tagnon administered 1 of the thiouracils for about five weeks before the administration of radioiodine was started, and they started the administration of ordinary iodine on the day after the therapeutic dose of radioiodine was administered. There is a possible disadvantage to this plan, that is, the administration of ordinary iodine at this time may increase the secretion of radioiodine from the thyroid and lessen its therapeutic effect.[26]

Within two to four weeks after radioiodine is administered, the thyroid becomes softer than it was previously, and the size of the gland begins to diminish gradually. In the 51 cases in which the hyperthyroidism was controlled, the average estimated weight of the thyroid was about 30 gm. before the administration of radioiodine was started (Table 4). In most of these cases, the estimated weight was less than 10 gm. or the gland was not palpable when the patients were last examined at the clinic. The basal metabolic rate begins to decrease in from two to six weeks after the administration of the isotope, and the reduction occurs gradually (Figure 1). The value for the plasma cholesterol increases. Subjective improvement occurs at the same time; palpitation and tachycardia, tremor, nervousness, intolerance of heat, and mus-

TABLE 4

DOSES OF RADIOIODINE ADMINISTERED IN 55 CASES OF EXOPHTHALMIC GOITER

RESULTS	CASES	AVERAGE TOTAL DOSE, MICROCURIES	AVERAGE PERCENTAGE OF INITIAL DOSE EXCRETED IN URINE IN FIRST 72 HOURS	AVERAGE ESTIMATED WEIGHT OF THYROID BEFORE TREATMENT, GM.	MICROCURIES PER ESTIMATED GRAM OF THYROID*			
					AVERAGE FIRST DOSE	AVERAGE SECOND DOSE	LARGEST DOSE	SMALLEST DOSE
Hyperthyroidism controlled	51	7,921	26.8	30	241		574	88
One dose	41†	7,560	31.7	27	252		570	88
Two doses	9†	10,203	24.5	38	207	193	309	91
Three doses	1†	16,000	24.3	40	104	93‡		
Subsequent recurrence	6†	6,493	31.4	24	247		574	110
Subsequent myxedema	15†	7,938	28.9	24	267		522	158
Hyperthyroidism not controlled	4	10,420	50.5	39	223		490	65

*These quantities were determined by the formula given in the text. Actually, they are higher than the respective amounts of radioiodine retained by the thyroid.

†These cases are included in the group of 51 cases in which the hyperthyroidism was controlled.

‡A third dose of 5,000 microcuries was administered in this case. The thyroid gland collected 18 microcuries per gram of weight.

TABLE 5

EFFECT OF RADIOIODINE ON THE BASAL METABOLIC RATE IN 55 CASES OF EXOPHTHALMIC GOITER

RESULTS	CASES	AVERAGE BASAL METABOLIC RATE, PER CENT					AVERAGE NUMBER OF DAYS REQUIRED FOR BASAL METABOLIC RATE TO BECOME NORMAL*
		BEFORE ADMINISTRATION OF RADIOIODINE	AFTER ADMINISTRATION OF FIRST DOSE	AFTER ADMINISTRATION OF SECOND DOSE	AFTER ADMINISTRATION OF THIRD DOSE	WHEN LAST DETERMINED	
Hyperthyroidism controlled	51	+37	+4			0	101
One dose	41†	+35	−1			−1	84
Two doses	9†	+50	+25	+2		+2	184
Three doses	1†‡	+42	+24	−4	+8	+8	76
Subsequent recurrence	6†	+39	+1			−1	83
Subsequent myxedema	15†	+35	−16				71
Hyperthyroidism not controlled	4	+36	+30			+30	

*After administration of first dose of radioiodine.

†These cases are included in the group of 51 cases in which the hyperthyroidism was controlled.

‡The hyperthyroidism persisted after the first dose. A second dose produced a remission which was followed by a recurrence. The recurrence was controlled by the third dose.

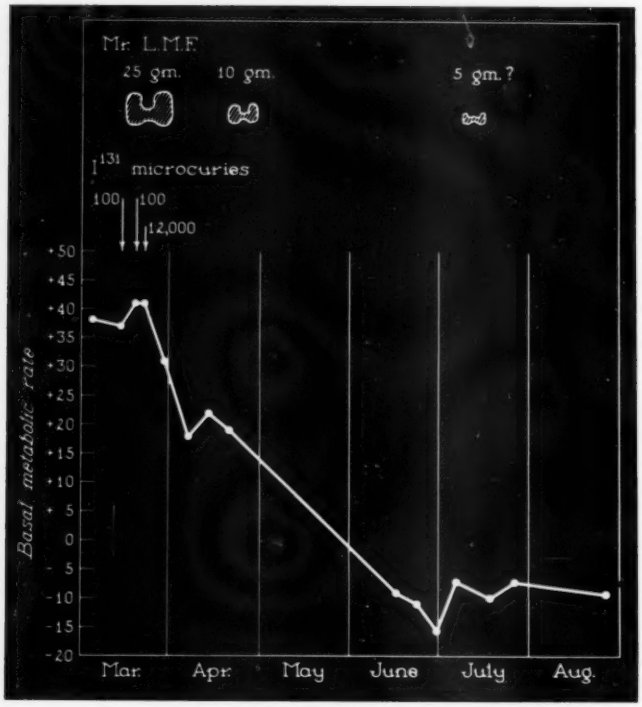

FIGURE 1. Response of exophthalmic goiter to radioiodine. The two doses of 100 microcuries of I^{131} were given for tracer studies. The 12,000 microcuries were given as a therapeutic dose. The basal metabolic rate became normal within three months and the thyroid gland became impalpable.

cular weakness all disappear gradually while the weight of the patient increases. In the 51 cases, the function of the thyroid gland became normal within one to six months after the administration of the initial dose of radioiodine, the average time being 101 days (Table 5).

In 15 of the 51 cases, myxedema developed rapidly or slowly after the function of the thyroid had become normal and had remained normal for from one month to several months (average, four months). In most of these cases, the myxedema has continued, but a remission occurred in 2 cases. In these cases, the basal metabolic rate is normal, and it is not necessary to administer thyroid (Figure 2). It will be interesting to observe whether or not the hyperthyroidism recurs in any of the 15 cases in which myxedema developed.

The remission of the hyperthyroidism has lasted for two years in some of our cases. In some of the first cases in which radioiodine was administered by Hamilton, the remission has lasted for eight years. It will be several years before it will be possible to determine the percentage of cases in which the hyperthyroidism will recur. Since exophthalmic goiter frequently recurs several years after thyroidectomy has been performed, it seems likely that hyperthyroidism may recur several years after a remission has been produced by the administration of radioiodine. In several of the cases reported by Chapman and Evans, a specimen of the thyroid gland was removed for biopsy as late as two years after treatment with radioiodine. Microscopic examination disclosed that the gland had been partially replaced by fibrous tissue. The number of follicles was decreased but the cells of the follicles were still hypertrophic, which indicates that radioiodine does not affect the original stimulus which causes hyperthyroidism but that it destroys a part of the overfunctioning parenchyma.

In cases in which patients are treated with I^{130}, the radiation of which is delivered more rapidly and in higher concentration than that of I^{131}, what appears to be radiation sickness often develops. We apparently have observed this effect in 1

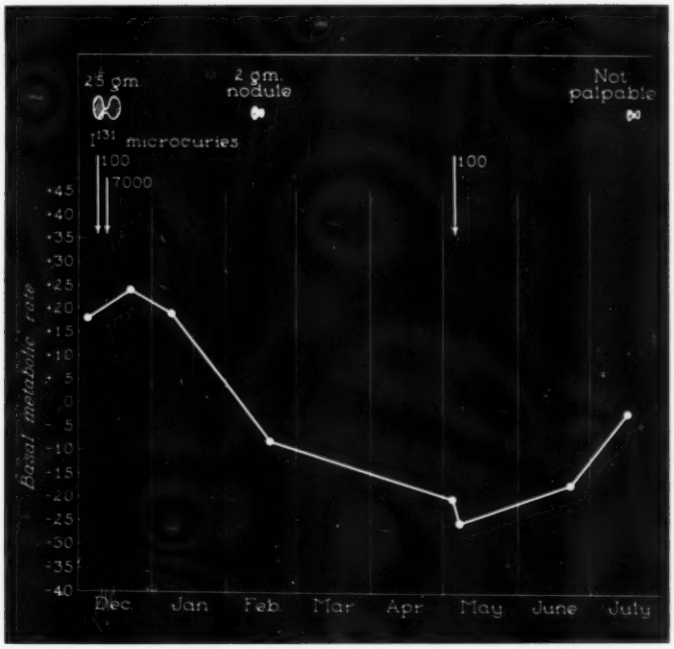

FIGURE 2. Myxedema developing about five months after the dose of 7,000 microcuries of I^{131}. With no additional treatment the patient spontaneously recovered from myxedema and remained normal.

case in which I^{131} was administered. Two days after I^{131} was administered, the patient had a mild febrile reaction which was associated with nausea and lasted for four days. The basal metabolic rate rose from +46 to +62 per cent. The leukocyte count decreased to 3,800 per cubic millimeter of blood, and then rapidly returned to normal. In a few cases, leukocyte counts and determinations of the sedimentation rate of the erythrocytes were made repeatedly after the administration of the isotope. Although the leukocyte count decreased slightly and the sedimentation rate of the erythrocytes rose slightly in some of the cases, the changes were not significant in any case. The radioiodine occasionally will impart a garlic odor to the patient's breath. This is attributable to contamination of the isotope with tellurium.

The response to radioiodine was striking in cases in which exophthalmic goiter was associated with heart disease. In some cases in which ascites and severe edema had necessitated the regular administration of mercurial diuretics, the administration of radioiodine relieved the congestive heart failure. In several cases, auricular fibrillation was replaced by normal sinus rhythm within a month or two after the administration of the first dose of radioiodine. Severe angina pectoris was completely relieved in 3 cases. In 1 of these cases, the patient insisted on plowing, whereas the attacks of angina formerly had occurred while he had been at rest.

In 1 case of severe thyrotoxic emaciation, dramatic improvement occurred within 3 months and the patient was able to work for the first time in several years. Many thin, weak, tremulous, staring invalids were transformed into robust healthy-appearing persons. Exophthalmos was usually not significantly altered, but in a few cases it became worse. This change occurs occasionally following any successful therapy for hyperthyroidism, be it surgical or medical.[27] It must be remembered that either thyroidectomy or the administration of propylthiouracil might have produced the same results as those which we obtained with radioiodine;[28] however, in the cases here reported the administration of radioiodine was associated with less risk than thyroidectomy, and it was less difficult than the administration of propylthiouracil.

COMMENT

Experience has proved that radioiodine is effective in the treatment of hyperthyroidism. We believe that it was the therapeutic agent of choice in the cases which we have reported. In our hands, it has almost replaced total treatment by the antithyroid drugs in cases of exophthalmic goiter in cases in which the surgical risk is high. In cases of very severe uncomplicated exophthalmic goiter, we still use antithyroid drugs to prepare the patients for thyroidectomy. Patients who have a moderately severe exophthalmic goiter still are treated with ordinary iodine for several days before thyroidectomy is performed.

The administration of radioiodine has certain disadvantages. Throughout the country as a whole, it may never be used as extensively as are the antithyroid drugs. It seems likely that its use will be largely restricted to medical centers because it requires expensive equipment and specially trained technicians. After the dose of the isotope and the technic of its administration have become standardized, it is possible that its use will become more general than it is at present.

Since radioiodine disintegrates rapidly, it must be used promptly after it is received. The dosage and the indications and contraindications for the administration of this isotope are not known definitely. Another handicap to its administration is the failure of the thyroid to collect radioiodine if ordinary iodine has been administered within a few days before the isotope is administered. After bronchography, excretory urography, or cholecystography has been performed, the uptake of radioiodine by the thyroid may be inhibited for variable periods.

Its use causes biologic, psychologic and medicolegal hazards for physicians, patients, and laboratory technicians. Precautions similar to those used by radium therapists must be adopted by persons handling radioiodine. Its easy portability adds considerably to the opportunity for exposure. Large amounts of the isotope may be present in the urine of patients, and there is always the possibility of contaminating a hospital room or a laboratory.

The hazards to patients are still undetermined. Roentgen or radium therapy of the thyroid has not been known to produce a malignant lesion of the thyroid. This is encouraging evidence for the safeness of radioiodine, but this isotope is being given in doses much larger than the doses of any other type of radiation ever delivered to the thyroid. In some cases, patients have been observed for eight years after radioiodine was administered.[29] Clinical examination did not disclose any evidence of a malignant lesion of the thyroid in any of these cases. In a few cases in which a specimen of the thyroid was removed for biopsy five years after the isotope was administered, microscopic examination of the specimen also failed to disclose any evidence of a malignant change.[30]

In cases in which radioiodine is administered, the gonads are exposed to small doses of radiation, probably less than 150 roentgen equivalents. These small doses should not lead to sterility or impotence on the part of the patient. The few children born to parents, either of whom has received radioiodine, have been normal, but the number of these children is far too small to warrant any conclusions. We have restricted the use of radioiodine to older patients, but the benefits of this isotope should not be denied to younger patients provided the risk of its administration ultimately is proved to be negligible. Some investigators are administering this isotope to patients of all ages, and even to pregnant women.[31]

Among the favorable aspects of therapy with radioiodine is its ease of administration. The isotope can be given in a drink of water since it is colorless and tasteless. The patient with hyperthyroidism is spared the painful and sometimes very dangerous ordeal of operation, or he usually is spared the prolonged, tedious, and sometimes unsuccessful use of antithyroid drugs. If treatment with radioiodine becomes standardized, it may result in a great saving to the patient. Hospitalization is not required, and in some cases the patient can continue to work or can resume work much sooner than he could after thyroidectomy.

In conclusion, we would like to state again that, at the present time, we still consider thyroidectomy after suitable preparation the treatment of choice for ordinary uncomplicated exophthalmic goiter.

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THYROID GLAND FUNCTION STUDIED IN MENTAL PATIENTS

No significant difference in thyroid function was found between mental patients and normal subjects, according to a study in which radioactive iodine was used to measure function of the thyroid gland. This research was conducted at the University of California Medical Center and was reported by Dr. Karl M. Bowman, director of the Langley Porter Clinic.

Although it has been thought that the thyroid gland plays an important role in mental disease, data obtained on 24 patients and 12 control subjects contrast with findings of many previous investigators. No change in thyroid function, furthermore, was revealed by the tests in patients during, or after insulin shock, electroshock, combined shock or psychotherapy. The tests did indicate profound changes after thyroid medication but studies have been completed on only two patients in this category.

Results of this preliminary study are only tentative, states Dr. Bowman, and a larger number of subjects must be investigated before definite conclusions can be drawn.

Bronchostenosis of Inflammatory, Probably Nonspecific Origin

TAGE KJAER, JENS L. HANSEN, AND CARSTEN M. SMIDT*

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My reasons for choosing to speak to you on so special a subject as bronchostenosis of inflammatory, probably nonspecific origin, are several:

First, the disease is but little known; perhaps there are a few in this audience who have not heard it mentioned before.

Second, we are able today, on the basis of our material, to establish that the assumption of the existence of a bronchostenosis of inflammatory, nonspecific origin is correct.

Third, with this disease in mind, it will be possible to avoid prolonged treatment in hospital and sanatorium. The symptoms and interpretation of x-ray films often lead to a confusion of this disease with cancer or, in rare cases, with tuberculosis, so that many patients undergo major operations or protracted sanatorium treatment.

Nonspecific, stenotic bronchitis is no uncommon disease, even though it is but little known. It involves lung diseases which wholly dominate the clinical picture, in consequence of which the primary bronchial disease very often escapes appreciation. It is, however, important to recognize the presence and character of the bronchostenosis for theoretical reasons, but even more so for practical, therapeutic reasons, as will appear from a few cases we shall describe briefly.

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Presented November 10, 1948, before the meeting of the Interstate Postgraduate Medical Association of North America, Cleveland, Ohio.

CASES IN THE LITERATURE

In a comprehensive work presented in 1938 before the Nordic Radiologists' Conference by Nils Westermark, the Swedish radiologist, and later in *Acta Radiologica,* various forms of bronchostenosis were described, including 4 cases of nonspecific, inflammatory bronchostenosis (originating from the bronchial mucosa). The cases appeared to be without histologic verification, but Westermark looked upon the condition as an independent unit of disease.

In 1939, 1940, and 1941 Prickmann and Moersch emphasized the importance of the bronchostenosis in relation to asthma. Up to 1941 they had collected 60 cases showing a definite, localized, stricture-like narrowing of the bronchus. They considered the bronchostenosis to be of primarily infectious origin, not an allergic edema or a bronchial spasm, and stressed that cough, fever, hemoptysis, and purulent sputum are symptoms which are not typical of the asthma proper, but symptoms which are caused by the localized bronchitis.

In 1944 Schmidt reported 19 cases of this disease and pointed out that bronchoscopic examination is the sole method of making an accurate diagnosis. He found that about 66 per cent of the patients were cured or improved by bronchoscopic dilatation. Mansmann and Osmond have called attention to

the association of the bronchostenosis with complications of asthma. However, it is also quite usual to find these bronchostenoses in cases without any asthma at all.

In 1946 Leegaard, the Norwegian otologist, presented 8 cases in which the diagnoses were based on bronchoscopy. In 4 of these cases there was histologic verification. Leegaard found in this material so many common features that he considered himself entitled to determine the condition as an individual disease which he named *bronchitis circumscripta non specifica.*

A review of the literature on 104 cases of benign bronchial tumors and inflammatory tumor-like masses was made by Pollak, Cohen and Grassi in 1938. The incidence of inflammatory tumor-like masses in the bronchi, according to their compilation, was 22 per cent, ranking second to that of adenomas. As mentioned previously, we, too, are of the opinion—judging from our series of 30 patients—that this conclusion was justified.

TAGE KJAER

GENERAL ASPECTS OF THE DISEASE

Pathologico-anatomically the disease can be divided into two main groups. The first group generally shows acute and subacute catarrhal changes with submucosal edema. The other form is chronic with fibrous, cicatricial stenosis. The changes in the second group extend through the whole bronchial wall, and in some cases a more tumor-like or polypoid appearance is seen. A tuberculous histologic picture has never been demonstrated, nor have tubercle bacilli been found.

Whether the disease may have been tuberculous in the past cannot be stated with certainty, but we do not think so, since 7 of our patients were Mantoux-negative, and only 1 had suffered from extrapulmonary tuberculosis. At any rate, it is possible to exclude extrabronchial compression in the cases operated on. In some other cases, however, we believe that inflammatory peribronchial changes and swelling of lymph glands may play a role in the formation of bronchostenosis. Brock has stressed the importance of this phenomenon in the formation of middle lobe stenosis.

In the first stage of the disease the inflammation is catarrhal, ulcerous, or granulating, with no considerable bronchostenosis (Table 1). The symptoms are cough and slight hemoptysis, but there are no lung changes.

TABLE 1

STAGE DIVISIONS

FIRST STAGE	SECOND STAGE	THIRD STAGE
No occlusion	Occlusion, no parenchymal changes	Occlusion and parenchymal changes
(4 cases)	(5 cases)	(21 cases)

In the second stage the bronchus is narrowed and the inflammation manifests itself either by a mucosal swelling (submucosal edema) or cicatricial retraction (fibrous ring structure). Respiration becomes wheezing, in some cases attended by an indefinable pain in the chest and often with fatigue and weight loss, yet there are no corresponding local symptoms. The closing of the bronchus is, of course, followed by atelectasis of the part of the lung concerned. Westermark maintains that this is preceded by localized emphysema, a condition which we have observed in 2 cases.

In the third stage—which is that most frequently met with in the hospitals—there are changes of

parenchymatous inflammation behind the bronchostenosis. Here it is first and foremost a matter of pneumonic changes, later of bronchiectasis, abscess, or empyema. The clinical and roentgenologic symptoms are now dominated exclusively by the lung changes in accordance with their nature. It is certainly reasonable enough that the primary bronchial disease may be overlooked in this stage. A common feature seems to be that the inflammations react less markedly to the treatment than the usual pneumonias or abscesses.

The course of the disease may be very acute with atelectasis—pneumonia as the initial symptom. In other cases the onset is lurking, with cough, hemoptysis, and wheezing for some time prior to the acute, pneumonic exacerbation. As a rule, the symptoms are remitting for long periods. An exact history will often reveal slight lung symptoms for months preceding the acute stage. It may also happen that the patients notice nothing whatever until they have developed chronic lung changes, for instance, bronchiectasis.

DIAGNOSIS

Diagnosis of the disease in the bronchi is made by bronchoscopy with biopsy and by bronchography, which often provides a most characteristic picture. A bronchus disease may be suspected when the history shows prolonged prodromal symptoms with cough, slight hemoptysis, wheezing, pain, and fatigue, and also obstruction atelectasis, perhaps together with processes of parenchymatous inflammation.

The safe "positive" diagnosis requires, of course, bronchibiopsy, which we have been able to employ in all our cases except 4, in which the stenoses were located too far peripherally in the upper lobes. It should be remembered that sometimes in the case of bronchial carcinoma the bronchibiopsy forceps only bring out inflamed tissue, so it is not always possible on the basis of only one bronchoscopic examination to be perfectly certain of the diagnosis.

In all our cases the course of the disease and the continued control of the patient have proved with great certainty its noncancerous and nontuberculous nature. This control has been carried out by all means available: by repeated x-ray examinations and bronchoscopies, and also by control of weight, blood, sedimentation tests, and examinations of sputum for tubercle bacilli or tumor cells.

It would seem that the sputum examination for tumor cells would be a valuable diagnostic method. However, I regret to say that in our experience the opposite is the case. In 6 cases findings of suspicious cell elements were reported to us—indeed, in 2 instances the cytologist had no doubt they were cases of malignancy. Very likely they were chiefly misinterpreted atypical macrophages.

Explorative thoracotomy has been the last diagnostic medium in several of our cases when all other means still left uncertainty. Five of the patients underwent operations on suspicion of bronchial cancer.

Our series of 30 cases included 16 men, 12 women, and 2 children and all ages were represented. There was histologic diagnosis in 26 cases, 15 with bronchibiopsy alone and 11 with surgical specimens. Only in 4 cases have we had to content ourselves with the clinical and roentgenologic verification supplemented by a close follow-up of the patients for at last one year, and more often for two or three years.

There were recurrent negative results from cultivations for tuberculosis in all cases. The cultivations were made from sputum, pleural exudate, and abscess pus. One patient had had extrapulmonary tuberculosis twenty years previously.

LOCALIZATION

Localization of the bronchostenoses was in all sizes of branches from the first to the third-fourth order. The right lung was affected in 19 cases, the left lung in 10 cases, and both lungs in 1 case. The right main bronchus was totally occluded in 1 case. The affection was seated in the upper lobe in 10 cases, in the lower lobe in 11, in the middle lobe in 4, and both the lower lobe and the middle lobe were affected in 4 cases (Table 2).

TABLE 2

LOCALIZATION OF THE BRONCHOSTENOSES

	NUMBER OF PATIENTS
Right main bronchus	1
Right upper lobe bronchus	6
Right stem bronchus under upper lobe departure	4
Right middle lobe bronchus	4
Right lower lobe bronchus	4
Left upper lobe bronchus	3
Left lower lobe bronchus	7
Both lower lobe bronchi	1

TOTALS		
Right lung	Left lung	Both lungs
19	10	1

TABLE 3

SYMPTOMS

	NUMBER OF PATIENTS
ACUTE	7
RECIDIVOUS	13
CHRONIC	10
Cough	30
Fatigue	28
Weight loss	26
Expectoration	21
Dyspnea	19
Pain in the chest	17
Fever	16
Recidivous pneumonia	13
Hemoptysis	7

SYMPTOMS

Seven of our patients had no symptoms prior to the acute exacerbation. In 18 patients there had been chronic or recidivous complaints. Thirteen patients had recidivous pneumonia, 7 had slight hemoptysis, 5 patients had had wheezing respiration (Table 3).

CHARACTER OF THE STENOSIS

Stenosis was demonstrated by bronchoscopy in 6 cases. In the majority of cases this stenosis was concentric, smooth, funnel-shaped, and incomplete. In 5 cases it was eccentric and more tumor-like. In 9 of the patients there was total occlusion. Generally, the bronchographic findings corresponded to the bronchoscopic findings (Table 4).

TABLE 4

CHARACTER OF THE BRONCHOSTENOSIS

	NUMBER OF PATIENTS
Predominantly mucosal affection	11
Deeper (total) wall affection	19
Eccentric	5
Concentric	25
Complete occlusion	9
Incomplete occlusion	21

LUNG COMPLICATIONS

Atelectasis was found in 11 cases (perhaps with slight bronchiectasis). In 5 patients the principal finding was bronchiectasis. Abscess was dominant in 5 patients, as empyema was in 2. In 3 patients an obvious fibrosis was the predominant feature. In 2 cases local emphysema was ascertained (Table 5).

TABLE 5

LUNG COMPLICATIONS

	NUMBER OF PATIENTS
Atelectasis without infection	4
Atelectasis with infection	7
Bronchiectasis	5
Lung abscess	5
Lung abscess empyema	2
Lung fibrosis	2

TABLE 6

TREATMENT

	NUMBER OF PATIENTS
SURGERY	
Pneumonectomy	4*
Lobectomy	7
Pneumonotomy	1
Rib resection with pleura drainage	1
Puncture treatment with empyema	1
ENDOBRONCHIAL	
Excision/dilatation	8
Aspiration alone	2
MEDICAL	
Postural drainage, autovaccine, penicillin, etc.	6

*One patient died.

TREATMENT

Pneumonectomy was performed in 4 cases, lobectomy in 7. Ten patients were treated with bronchoscopic excision (Table 6). One patient died following pneumonectomy; autopsy showed cor pulmonale and pneumonia in the remaining lung. Two elderly patients, nearly 70 years of age, were not operated on, and died from other causes after discharge. Four patients were improved, and 22 were cured. One patient has unchanged complaints (Table 7).

TABLE 7

RESULTS

	NUMBER OF PATIENTS
Cured	22
Improved	4
Unchanged	1
Died in hospital	1
Died after discharge	2*

*One of pneumonia and one of irrelevant causes, cured of the lung disease.

CASE REPORTS

It is impossible in this discussion to demonstrate all our cases, and we shall therefore confine ourselves to a few characteristic instances.

Case 1—This patient, a 42-year-old female, was admitted to a medical department with pneumonia. In spite of chemotherapeutic treatment she continued to show a rise in temperature. She was bronchoscoped and a cancer-like tissue was found in the middle lobe bronchus. Bron-

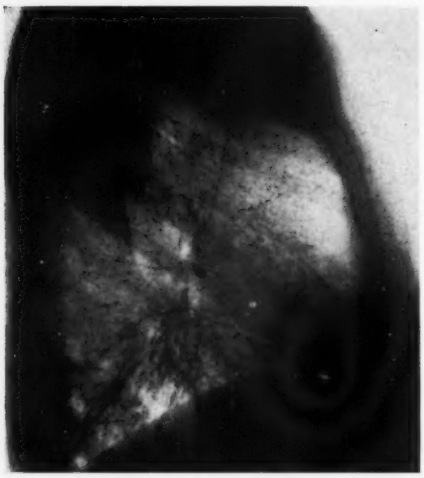
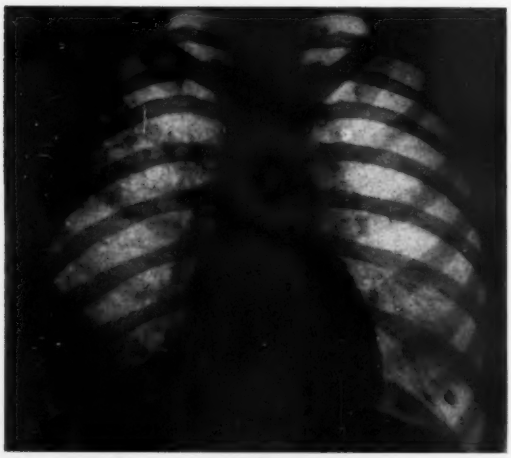


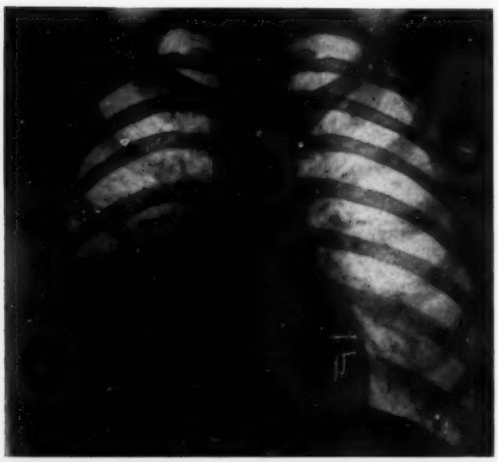
FIGURE 1 (Case 1), *Top, left.* Bronchography showed occlusion of middle lobe bronchus.

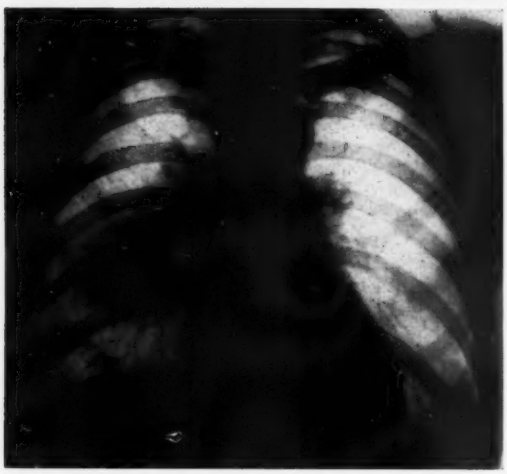
FIGURE 2*a* (Case 2), *Center, left.* Roentgenologic study revealed pneumonia and atelectasis of right lower and middle lobes. 2*b*, *Center, right.* X-ray taken shortly after bronchoscopic excision.

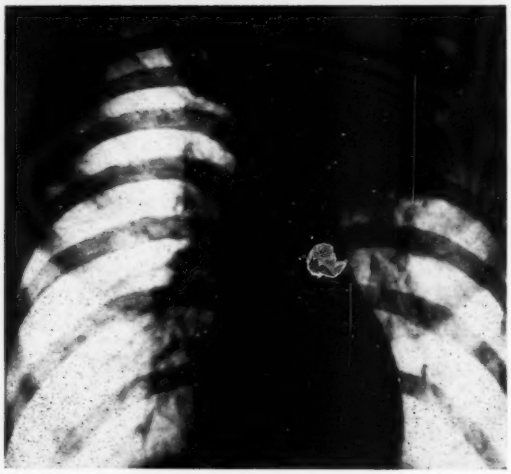
FIGURE 3 (Case 3), *Bottom, left.* Roentgenologic examination showed pneumonia and abscess.

FIGURE 4 (Case 4), *Bottom, right.* Roentgenologic examination revealed partial atelectasis of left upper lobe.









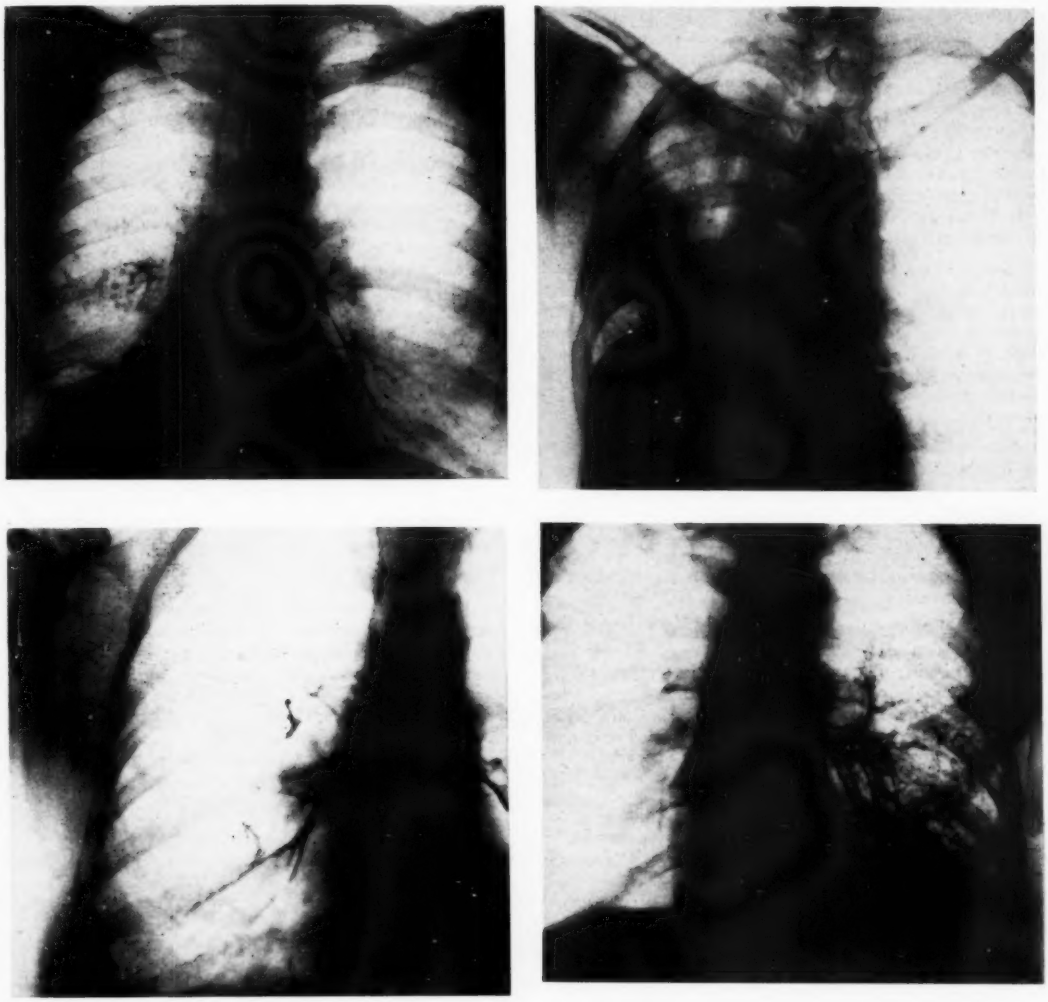


FIGURE 5 (Case 5), *Top, left.* Bronchography showed bronchostenosis with bronchiectasis lying at the back. FIGURE 6 (Case 6), *Top, right.* Study showing result of granulations and the almost total destruction of the lung parenchyma. FIGURE 7 (Case 7), *Bottom, left.* A funnel-shaped lower lobe bronchial stenosis may be seen in this figure. FIGURE 8 (Case 8), *Bottom, right.* Roentgenologic study suggested presence of tumor.

chography showed occlusion of the middle lobe bronchus (Figure 1). Operation was performed. When cutting up the bronchus to the middle lobe no cancer-like tissue was found, so lobectomy was performed. Histologically only nonspecific inflammation was found in the beginning of the middle lobe bronchus. The patient recovered and was observed for six months postoperatively.

Case 2—This 23-year-old female had a five-month anamnesis showing weight loss, cough, and wheezing respiration. She was admitted with an acute exacerbation, septic, and extremely weak. Roentgenologic study revealed pneumonia and atelectasis of the right lower and middle lobes (Figure 2*a*). After bronchoscopic excision, aspiration of over 100 cc. of fetid pus was performed, followed by an immediate drop in temperature. The patient was soon symptomless. Nonspecific inflammation was proved

histologically. The x-ray shown in Figure 2*b* was taken shortly afterward. This patient has been followed for two years, and remains cured.

Case 3—This 49-year-old female had had alternate attacks of fever, cough, stitch, and expectoration for six months. Roentgenologic examination showed pneumonia and abscess (Figure 3). Bronchoscopy disclosed concentric stenosis with cancer-like tissue. The presence of tumor cells was suggestive of cancer, and pneumonectomy was performed. Histologic examination proved only nonspecific inflammation. This patient has been well for eighteen months.

Case 4—This patient was a 47-year-old male. The x-ray shown in Figure 4 revealed partial atelectasis of the left upper lobe. Bronchial tumor was strongly suspected. Bronchoscopy disclosed narrowing of upper branch from upper lobe. A tumor cell test suggested cancer, but the atelectasis disappeared completely; the patient has been followed for nearly three years, and is feeling well. Recent x-rays are normal.

Case 5—In this patient, a 48-year-old male, the symptoms of bronchiectasis were dominant. Bronchography showed bronchostenosis with bronchiectasis lying at the back (Figure 5). Treatment consisted of middle and lower right lobectomy. The patient recovered. In this case the WR was positive, but specific therapy was without influence on the bronchostenosis. Histologically, chronic fibrous inflammation was proved.

Case 6—How grotesque the result of granulations and the almost total destruction of the lung parenchyma may be is seen in the x-ray study of this patient (Figure 6), a 42-year-old male, who had for many years suffered from progressive dyspnea, cough and expectoration, hemoptysis, fever, and weight loss. Pneumonectomy revealed only nonspecific inflammation. He is now fully able to work.

Thirty years previously this patient had had a knee joint tuberculosis; the knee was resected. Later he had lupus, which was cured by local Finsen light. Twenty years ago there was nothing abnormal in the lung x-rays. Since then the lungs have not been controlled. He had progressive dyspnea, cough, and expectoration. No tubercle bacilli were demonstrated in numerous cultivations from the expectorate. Microscopic examinations of the lung and bronchial tissue showed only nonspecific inflammatory changes. Nevertheless, it may probably have been an original bronchial tuberculosis. It has healed in regard to tubercle bacilli, but has caused nonspecific abscesses and bronchiectases in the lung. This case may be compared to old tuberculous intestinal strictures; in both instances it is at times just a case of a fibrous ring with stenosis of the organ, but without tubercles.

Case 7—A case of bronchostenosis combined with fits of asthma is demonstrated. Here a funnel-shaped lower lobe bronchial stenosis is seen (Figure 7). The biopsy and the clinical course have confirmed that this is a case of nonspecific inflammation only, mostly with submucosal swelling. In these cases there is edema which shows distinctly by bronchography, but which is less conspicuous by bronchoscopy.

Case 8—This 55-year-old male had had cough, expectoration, and weight loss for six months. The x-ray was suggestive of tumor (Figure 8). By bronchography, carried out twice, a stop was found in the lower part of the left lower lobe. Expectorate showed cells suggestive of malignancy, and for this reason pneumonectomy was performed. Two to three days postoperatively right-sided pneumonia developed and was treated with penicillin. On the fifth day the patient's temperature rose again and the right-sided pneumonia recurred. In spite of energetic sulfa and penicillin treatment the pneumonia advanced and the patient died. Section showed right-sided pneumonia and cor pulmonale. The expectorate showed cells which were stated by an approved pathologist-anatomist to be obvious tumor cells. Serial section showed only nonspecific inflammation.

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Diagnostic Clinic

Disturbances in Electrolyte Metabolism of Patients with Nephrotic Syndrome

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THERE have been a few encouraging results from therapy, but little new information about the diagnosis of so-called lipoid nephrosis. You are all acquainted with its main clinical features, and our only question regarding diagnosis is that relating to the nature of the particular case in hand—whether it is one of so-called "pure" lipoid nephrosis or one of chronic glomerulonephritis with a superimposed picture or syndrome of lipoid nephrosis.

Lipoid nephrosis is characterized by massive edema when we see the patient for the first time. We would like to know with more certainty what happened before he came to us, but the onset is so insidious that what we hear from the parents is merely a story of the child's having had frequent colds and other mild respiratory infections.

We are uncertain whether or not infection is the cause of the disease, but we suspect that it contributes significantly to the underlying difficulty.

In addition to the massive edema, the patient with lipoid nephrosis has maximal albuminuria at the height of the disease. When we examine the blood for its lipid content, that is, the cholesterol, phospholipids, and neutral fat, we find they are all from 200 to 500 per cent of normal. We put these abnormalities and hypoproteinemia together as the essentials—edema, albuminuria, hypercholesterinemia, and very low serum proteins (Table 1). The albumin is the fraction of the serum proteins which suffers the greatest loss. We assume that this is because the molecule of albumin has the smallest molecular weight (68,000). The molecule of a globulin is much larger; that of fibrinogen is in the neighborhood of 700,000.

We know now that the protein molecules are of different shapes. The fibrinogen is made up of a lot of needle-shaped crystals. The molecule of albumin is rather elliptical, much smaller, more mobile, and has a much higher osmotic pressure value. Therefore, it is the most important in retaining the blood plasma fluid within the capillaries, a very important factor in relation to the edema.

Despite many brilliant investigations in recent years on this subject, we do not yet know the underlying causes, the true pathogenesis of this disease; nor can we say that we have a final cure. However, we do have a lot of remedies and ways of preventing some of the complications, particularly infections. These little patients will often suffer so severely from infection in their first few attacks that we lose some of them—in the past as many as one-third from complicating peritonitis alone. Now with the new antibiotics and sulfonamide drugs, we are able to make them live much longer, just as we have been able to do in cases of diabetic children by the use of these agents and insulin. It gives us a chance to save their lives, and to make them much more comfortable while we are learning something more basic about the disease.

CASE REPORTS

Case 1—Jimmy R., a 5-year-old white boy, was in good health until June, 1946, at which time he was 3 years of age. He was first admitted to Saint Luke's Hospital with edema of the face, eyelids, legs, abdomen, and genitalia. His past history was negative. Physical examination re-

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vealed marked edema of the face, eyelids, and extremities. The tonsils were enlarged.

Blood pressure was 100/60; pulse 130, temperature 38° C. An abdominal fluid wave was present. There was four plus pitting edema of both legs and the genitalia were markedly edematous. Urine showed four plus albumin and specific gravity of 1.038. White blood cell count was 7,350, hemoglobin 12.2 gm. The total serum protein was 3.5 gm. per 100 cc.; serum albumin 2.3 gm. per 100 cc.; albumin-globulin ratio 1.9; blood cholesterol 528 mgm. per 100 cc.; blood sodium chloride 602 mgm. per 100 cc.

He was given plasma and whole blood transfusions. In addition, he received bicarbonate of soda and potassium citrate daily. He gradually improved with disappearance of the edema, marked weight loss, and a marked increase in the daily urine output. At this time the urine showed one plus albumin and the total serum protein was 5.1 gm. per 100 cc., albumin 0.4 gm. per 100 cc., albumin-globulin ratio .09. He was discharged on the forty-first hospital day.

Since the original admission, this patient has had seven subsequent hospitalizations up to September, 1948, because of recurrent episodes of generalized edema, hypoproteinemia, and albuminuria. Most of these exacerbations were ushered in by respiratory infections. In December, 1946, he had measles with no apparent effect on the course of the nephrosis. In June, 1947, a tonsillectomy was done.

At his last hospital admission, in September, 1948, the urine again showed four plus albumin. The total serum protein was 3.0 gm. per 100 cc., the serum albumin 0.3 gm. per 100 cc., and the albumin-globulin ratio was 0.1; serum cholesterol 725 mgm. per 100 cc. Treatment consisted of an abdominal paracentesis with the removal of 2,500 cc. of straw-colored fluid; sulfadiazine; high-protein diet with protenum as a supplement, and plasma transfusion. He was discharged, improved, on the twenty-sixth hospital day. Prophylactic treatment with sulfadiazine, 1 gm. per day, was continued following the last hospital admission.

Case 2—Larry G., a 4½-year-old white boy, first developed swelling of the face, eyelids, abdomen, legs, and scrotum in May, 1946, when he was 2 years of age. These symptoms followed a cough and respiratory infection. The past history was negative. He was admitted to another hospital in August, 1946, where he remained until December, 1946. In January, 1947, he was admitted to Saint Luke's Hospital with generalized edema.

Physical examination revealed a pale, edematous, 2½-year-old white boy. Skin turgor was poor. Blood pressure was 98/70, pulse 120, temperature 37° C. Tonsils were enlarged. There was an abdominal fluid wave present, and four plus pitting edema of both legs. The remainder of the physical examination was negative.

The urine showed two plus albumin and a specific gravity of 1.015. White blood cells numbered 6,950; hemoglobin 11.4 gm.; serum cholesterol 379 gm. per 100 cc.; serum total protein 3.5 gm. per 100 cc.; the albumin was zero; blood nonprotein nitrogen was 33 mgm. per 100 cc.

The patient was given a high protein diet, penicillin, and an abdominal paracentesis was performed. Multiple plasma transfusions were also given. The edema gradually receded with a concomitant weight loss of twenty pounds. The patient was discharged on the thirty-fifth hospital day.

Since the first admission, this patient has had two subsequent recurrent episodes of generalized edema following the onset of a cold and sore throat. In July, 1948, he was readmitted to the hospital for the third time. The urine showed four plus albumin and occasional granular casts and red blood cells. Blood cholestrol was 722 mgm. per 100 cc.; serum total protein was 3.5 gm. per 100 cc.; serum albumin 0.5 gm. per 100 cc., and the albumin-globulin ratio was 0.17.

Treatment consisted of penicillin, thyroid extract, and a high-protein diet. A tonsillectomy was done in September, 1948. The edema again disappeared, and the urine now showed two plus albumin with no casts or red blood cells. The patient was discharged in September on the seventy-second hospital day. At present he is receiving prophylactic sulfadiazine, 1 gm. daily.

THESE two little patients, Jimmy and Larry, are as typical as their names are common in America among boys. They both started to have their disease in 1946, one in May, the other in June. They had a gradual increase of puffiness about the eyes and so on, and their mothers could notice that they were not well, that they had these little infections. Their appetites were not very good and they were a little irritable. This is the first time I have seen them but I could be sure of those things. They have both been through bouts, if you wish, or re-

TABLE 1

RANGE OF BLOOD SERUM COMPONENTS IN PATIENTS WITH NEPHROTIC SYNDROME
(Per 100 ml.)

NAME	DETERMINATIONS	CHOLESTEROL, MG.	NONPROTEIN NITROGEN, MG.	TOTAL PROTEIN, GM.	ALBUMIN, GM.	GLOBULIN, GM.
Normal		124-246	25-35	6.50-8.20	4.60-6.70	1.20-2.30
DG	6	520-870	62.9-94.6	3.44-4.71	0.88-2.11	2.15-2.77
D Le B	5	252-365	132.2-223.3	2.47-4.45	0.91-1.94	1.20-2.51
RH	2	270-272	19.7-22.7	4.15-5.68	2.98-3.89	1.17-1.79
BZ	8	362-665	35.5-79.0	2.84-3.79	0.75-1.78	1.70-2.37
JZ	12	106-795	19.9-64.8	3.33-8.22	1.10-4.08	1.86-4.33
DH	2	665-755	36.2-46.0	4.53-7.26	0.92-3.89	3.37-3.61
DC	4	458-635	25.6-62.1	3.28-4.10	0.82-1.52	1.81-2.83
MB	5	307-550	36.7-68.8	2.86-3.54	0.99-1.75	1.62-2.35
JE	8	275-515	29.9-45.5	2.81-4.15	0.97-1.53	1.53-2.51
TP	1	447	33.3	3.09	2.01	1.07
DK	2	395	20.0-25.9	3.46-5.78	0.47-1.59	2.99-4.19
TC	11	170-870	16.7-60.5	2.11-5.18	0.31-1.59	1.76-4.01
MW	3	898	31.6-43.8	3.29-3.56	0.75-0.98	2.48-2.63
RN	8	305-898	13.7-60.8	3.22-5.77	0.44-2.40	2.28-4.35
OW	5	342-740	22.5-34.3	3.98-5.90	0.89-1.96	3.09-4.24
EG	1	435	13.2	4.54	2.33	2.21
JH	3	427-735	36.0-71.1	3.59-6.00	0.42-2.35	3.24-3.70

missions and exacerbations of this edema, one four times, the other six.

There is a tendency as time goes on for such little patients to show more and more inclination to chronicity. At first they may experience a remission just from restricting salt in the diet and, perhaps, receiving one blood transfusion. The next time it will take more and then more, and finally we come to a problem which I wish to stress today in showing some things we can do in that stage that we were unable to do until recently because we have come to understand this disease a little better.

THESE boys are now about 4½ or 5 years of age. We see so-called "true" lipoid nephrosis in its purest form in children of this age and younger. Both of these boys are free from edema right now; they are in remission, and we hope they may stay so. We see from their records that they have no red blood cells in the urine; they have no arterial hypertension; the nonprotein nitrogen of the blood is normal; certain renal functions appear to be good. If we were to do clearance tests on them, we would find the urea clearance to be normal, as well as some of the other more refined renal function tests. In some cases, according to recent claims, the clearance of urea is better than normal. Albuminuria, however, is maximal.

There are two theories about the cause of the albuminuria. One is that the glomeruli are simply leaky and lose serum albumin as the blood flows through them. The other theory is that the albumin (amounting in children of these ages to as much as 20 or 25 gm. per day) normally passed through the glomeruli with the filtrate is not reabsorbed, as it is normally, by the tubules. Some believe it is a matter of failure of reabsorption of that normal albumin due to abnormal tubular function; others that it is simply due, at least in the early stages, to the elimination of abnormally formed albumin. We cannot determine which it is at this time. Possibly both are important, but in the early stages there is not much to see histologically in the kidneys. That is what is hopeful about the disorder in this early stage. If we can just get the right clue to the pathogenesis we can probably cure these chil-

TABLE 2

RANGE OF BLOOD SERUM ELECTROLYTES IN PATIENTS WITH NEPHROTIC SYNDROME
(Per Liter)

NAME	NO. OF PATTERNS	CARBON DIOXIDE	CHLORIDE	PHOSPHORUS	PROTEIN	CALCIUM	MAGNESIUM	SODIUM	POTASSIUM	TOTAL ANIONS*	TOTAL CATIONS
Average Normal		MEQ. 28	MEQ. 103	MEQ. 2	MEQ. 16	MEQ. 5	MEQ. 3	MEQ. 142	MEQ. 5	MEQ. 149	MEQ. 155
GG	2	12.14-21.31	98.00-113.00	1.49-3.56	9.76- 9.88	3.42-3.89	0.97-1.45	130.58-133.97	5.15-6.46	130.56-138.67	140.59-145.30
DG	6	11.66-20.99	103.65-110.40	2.66-4.67	8.46-11.58	3.67-4.53	0.73-1.49	124.00-140.05	4.39-8.04	131.06-144.24	136.78-150.43
DLB	5	12.49-24.32	100.70-116.50	2.99-4.30	6.05-10.94	3.03-4.70	0.91-1.15	132.02-134.55	5.13-6.95	133.42-143.07	143.21-146.72
RH	2	22.85-26.01	103.10-103.45	2.30-3.30	10.21-13.98	5.33-5.55	1.30-1.46	133.97-137.09	5.50-6.22	141.62-143.58	147.20-149.22
BZ	8	17.15-20.20	101.20-116.35	2.80-3.90	6.98- 9.32	3.83-4.39	0.98-1.38	119.21-131.88	4.15-5.90	130.22-143.88	129.46-143.36
JZ	12	19.90-27.20	95.74-111.75	2.17-4.53	8.19-20.22	4.21-5.93	1.08-2.04	125.57-139.62	3.85-6.76	134.56-155.53	142.21-150.65
DH	2	20.99-22.30	105.20-106.15	2.90-2.91	11.14-17.86	4.22-5.68	1.48-2.15	128.29-129.09	5.11-5.59	139.22-140.23	140.57-141.04
DC	4	15.93-23.79	102.63-111.89	2.99-3.44	8.07-10.08	4.28-5.39	0.65-1.46	125.10-133.89	4.25-6.56	133.38-145.77	136.82-143.53
MB	5	17.34-20.07	104.85-107.25	3.13-3.65	7.03- 8.70	4.08-4.64	0.93-1.82	128.05-133.90	5.21-7.33	129.78-138.60	139.16-145.59
JE	8	16.11-23.67	102.10-110.09	2.37-5.36	6.91-10.21	3.54-5.40	0.68-0.98	128.38-135.90	3.48-5.64	133.01-140.22	137.49-146.52
JP	1	25.51	113.91	3.62	7.60	4.21	1.39	139.17	5.80	150.62	150.57
DK	2	20.58-20.73	99.00-107.85	3.31-3.48	8.51-14.22	4.34-5.20	1.15-1.40	131.82-134.91	5.30-5.35	134.55-146.13	142.91-146.56
TC	11	21.40-39.65†	69.75†-109.50	2.38-4.24	5.18-12.74	2.37-4.51	1.01-1.95	126.03-141.05	1.86-5.07	117.70-148.12	133.03-151.21
MW	3	19.90-26.60	91.50-106.50	2.40-3.03	8.10- 8.76	3.99-4.49	1.22-1.40	124.86-134.36	3.86-4.81	128.84-136.23	139.73-145.06
RM	8	16.42-27.47	103.20-113.85	2.88-4.01	7.93-14.19	3.26-5.05	1.13-1.74	127.27-141.50	4.30-6.26	135.69-149.22	139.89-151.74
OW	5	22.03-27.39	101.25-111.00	2.39-3.62	9.79-14.51	3.75-4.69	1.19-1.83	135.85-143.13	3.49-5.07	140.80-150.19	145.40-154.01
EG	1	25.80	110.10	2.17	11.16	4.23	1.89	138.32	5.80	149.24	150.24
JH	1	21.41	104.10	2.71	14.76	4.36	1.65	142.61	6.54	142.98	155.16

*Organic acids not included.
†Under alkaline therapy.

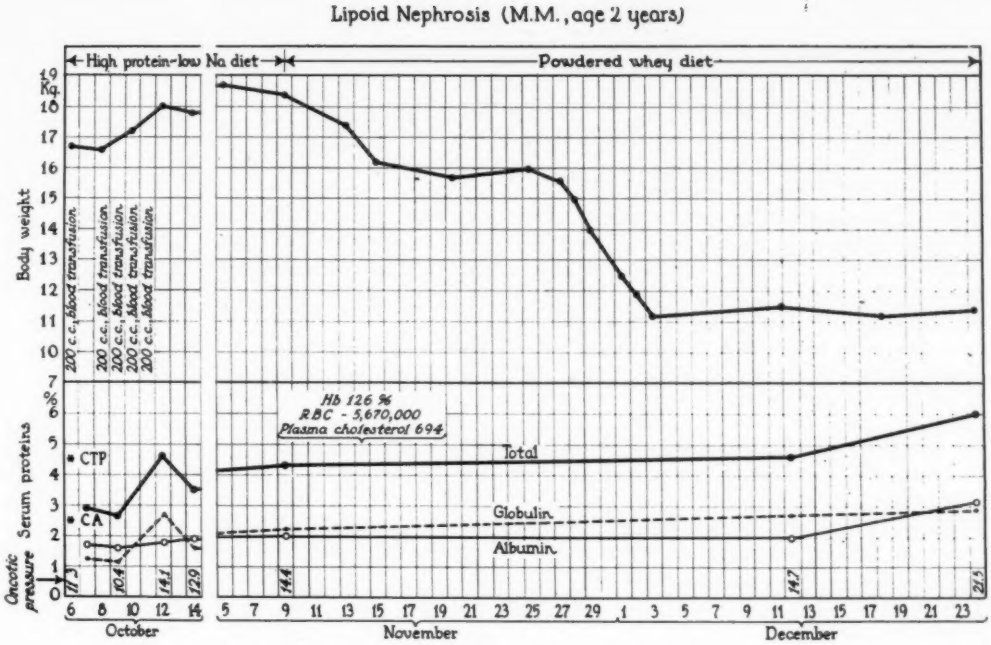


FIGURE 1. Limited effectiveness of whole blood transfusion in severe subacute nephrosis. Amount of blood given in six days equal to patient's estimated total volume. Spontaneous diuresis after slow regeneration of serum proteins on whey diet. Complete recovery.

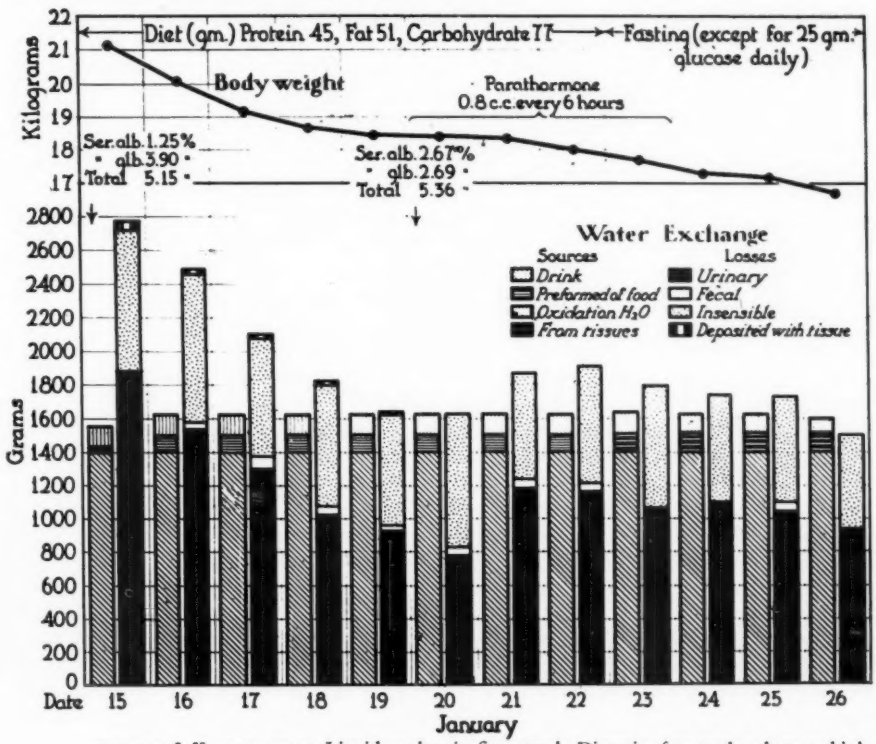


FIGURE 2. J. K., age 4 years. Lipoid nephrosis, first attack. Diuresis after twelve days on high-protein, low-salt diet alone; no blood or plasma given. Note effect of parathyroid extract given to hasten completion of edema loss.

dren. I fully believe we shall be able to do that some day, although at present we must be quite reserved in our estimate of the prognosis.

These children both received extra serum protein in the form of plasma transfusions. Where there was a little anemia, they received whole blood.

I wish to thank Dr. Rittinger, chief pediatrician of Saint Luke's Hospital, for furnishing us these typical cases, and Dr. Stoner, his hospital resident, for bringing them to us, and we thank the parents, of course, most of all. Every attempt has been made to control the infections, with the thought that they may have something to do with the cause of the disease. If we could eliminate infection entirely, we would do something very valuable for these children. Both boys have been a little better since they had their tonsils removed. The operations were so recent that we cannot judge what the future will be in that respect, but apparently such patients are occasionally benefited by removing various foci of infection.

Dr. Rittinger has given them 1 gm. of sulfadiazine per day prophylactically between attacks, hoping to prevent exacerbations of the disease, as one prevents recrudescences of rheumatic heart disease by controlling acute streptococcal infections suspected of playing an accessory etiologic role. These children are getting along very nicely at the present time.

I WANT to show you what can happen in a child this age—it might have been one of these children—who had very low total serum protein (Figure 1). Throughout this period covered by the graph, the albumin is less than the globulin; it should be approximately twice as much as the globulin in terms of percentage. This value, plus or minus 0.25 per cent, has been considered the critical point for edema formation; 2 per cent is supposedly the critical point for albumin, the more important of the two proteins from the viewpoint of osmotic pressure.

The concentration of serum proteins in this patient was far below the critical point. We administered whole blood until the child looked as if she had polycythemia vera, with very extensive expansion of her blood volume but only a little diuresis. The proteins rose for a while and then came down again. We followed her for some months, and her weight remained excessive. Then, despite the fact that the serum proteins were below the "critical" levels, particularly the albumin, for a long time (October to December), the edema was suddenly lost. We cannot, as we thought only a few years ago, rely upon the level of the serum protein as an infallible guide. There is not an absolute relationship, because there are many factors in the causation of edema in addition to loss of serum protein or to the lowering of the colloidal osmotic pressure in the blood plasma to counteract the effect of the hydrostatic pressure in the capillaries. So we have to seek for other information.

Figure 2 shows the water balance in a child in his very first attack. Simply by his being put on a high-protein, salt-free diet, he lost the edema. I will not go into the details of this water balance chart, but it is a very accurately calculated balance. You notice that his serum proteins went from 1.25 per cent albumin to 2.67 per cent, supposedly enough to account for his diuresis.

Figure 3 shows the electrolyte output. The sodium and the chloride are the ions in the blood plasma that are most important. They are dispersed in the edema fluid throughout the body; the excess is lost when the fluid is lost, and if they are not allowed to re-accumulate, we should not have recurrence of the edema. Note that there was no outpouring of excessive amounts of chloride in this early stage of the disease after the edema was eliminated.

In a case of moderate severity, before it develops into the very chronic stage with signs of failing kidney function, as many of them do as a complication or sequel, the response to administration of lyophilized or thrice-concentrated blood serum (a much more potent agent for raising the colloidal osmotic pressure than unconcentrated serum), is often striking. In the presence of markedly impaired renal function, on the other hand, results of serum replacement therapy alone are frequently disappointing.

In the course of water balance studies on epileptic children to determine the effects of pitressin, the antidiuretic hormone of the pituitary gland, we found that we could induce seizures at will in epileptic patients, though not in normal controls, by giving pitressin every three hours to interfere with the loss of water, and thereby dilute the body fluids. Having observed incidentally that the weight went below the base level when the pitressin was withdrawn, we decided to try it in nephrosis.

The weight record of a very edematous patient with a normal weight of 22 kilograms, which had

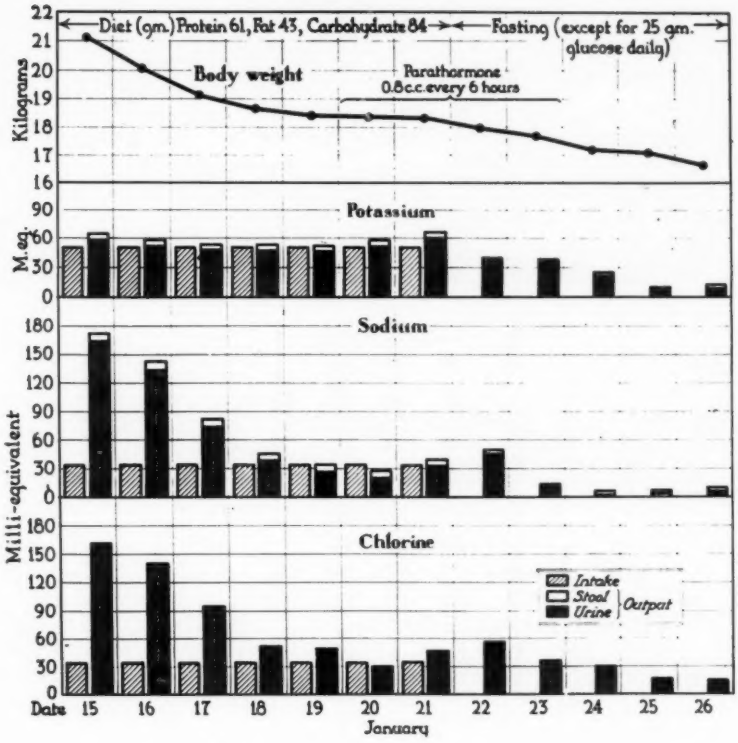
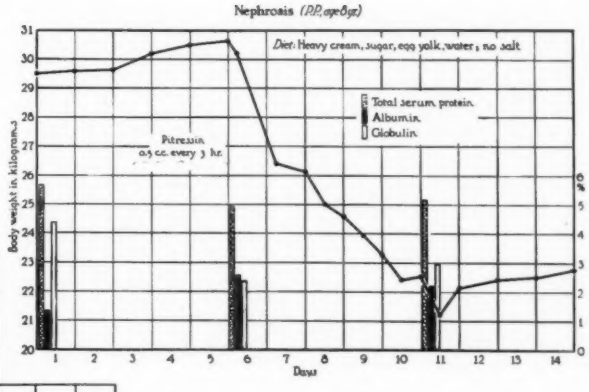


FIGURE 3. *(above)* J. K. Electrolytes excreted in excess during period of edema loss only. Compare with FIGURE 6. Complete recovery.

FIGURE 4. *(right)* P. P. Lipoid nephrosis, first attack. Effect of sustained pitressin antidiuresis and forced water intake; low-salt diet. Complete loss of edema following withdrawal of antidiuretic.

(Figures 4, 5, and 6 from: McQuarrie, I., Thompson, W. H., and Ziegler, M. R.: J. Pediat. 8:277, 1936.)



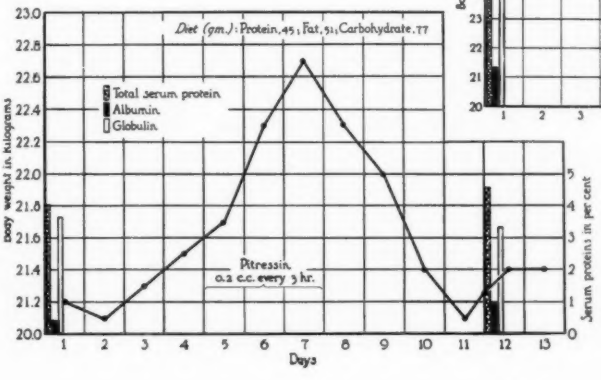


FIGURE 5. *(left)* S. N., age 9 years. Nephrotic syndrome in severe chronic glomerulonephritis. Pitressin antidiuresis and withdrawal ineffective.

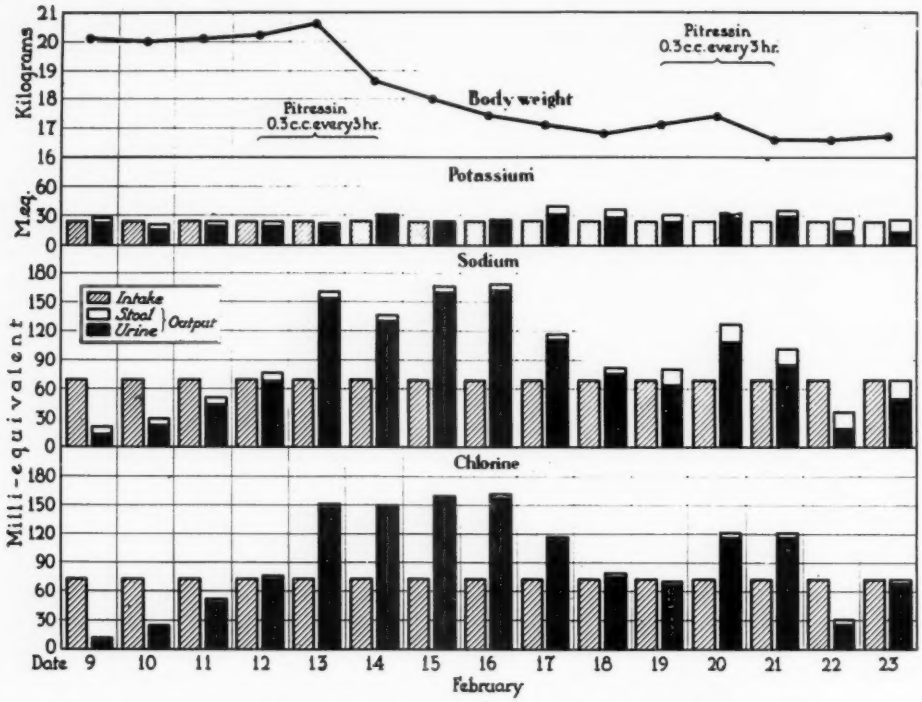


FIGURE 6. K. J., age 5 years. Subacute lipoid nephrosis. Prolonged second attack. Excessive outpouring of chloride and sodium in ratio of 1 to 1. Sodium and chloride excretion out of proportion to water loss during period of subsiding postpitressin diuresis.

increased to 30 kilograms, is shown in Figure 4. We had had him on a low sodium chloride intake and a fair amount of water every day for several weeks, and gave plasma without effect. We then gave him pitressin every three hours for two days, which temporarily increased the edema. When we suddenly withdrew the pitressin, he lost not only the extra weight gained as a result of the antidiuretic action of pitressin but went on losing weight to his normal level. There was a little shift

TABLE 3

RANGE OF ASCITIC FLUID ELECTROLYTES IN PATIENTS WITH NEPHROTIC SYNDROME
(Per Liter)

NAME	NO. OF PATTERNS	CARBON DIOXIDE	CHLORIDE	PHOSPHORUS	PROTEIN	CALCIUM	MAGNESIUM	SODIUM	POTASSIUM
Average Normal		MEQ. 28	MEQ. 103	MEQ. 2	MEQ. 16	MEQ.	MEQ.	MEQ.	MEQ.
DG	2		111.80-125.18	3.48-5.27	0.05-0.47	2.74-2.93	1.07-1.37	128.7 -131.10	5.60-6.13
BZ	4	20.38-25.43	115.50-125.20	3.17-3.42	0.29-1.07	2.84-3.22	0.86-1.28	134.49-139.25	4.29-4.66
JZ	1		117.30	2.43	0.69	3.45	0.37	130.10	4.64
MB	2	23.00-24.41	113.85-115.50	2.80-3.17	0.11-0.31	3.15-3.29	0.36-1.30	131.63-134.16	6.54-9.20
JE	1	22.41	113.65	3.13	0.21	2.88	0.60	134.09	4.69

in the protein; the albumin rose to a little higher level, even before he lost very much of the water. The significance of this incidental observation is not apparent. If we could always obtain that result, however, it would be very fine, but unfortunately we cannot, particularly in chronic cases with superimposed nephritis (Figure 5).

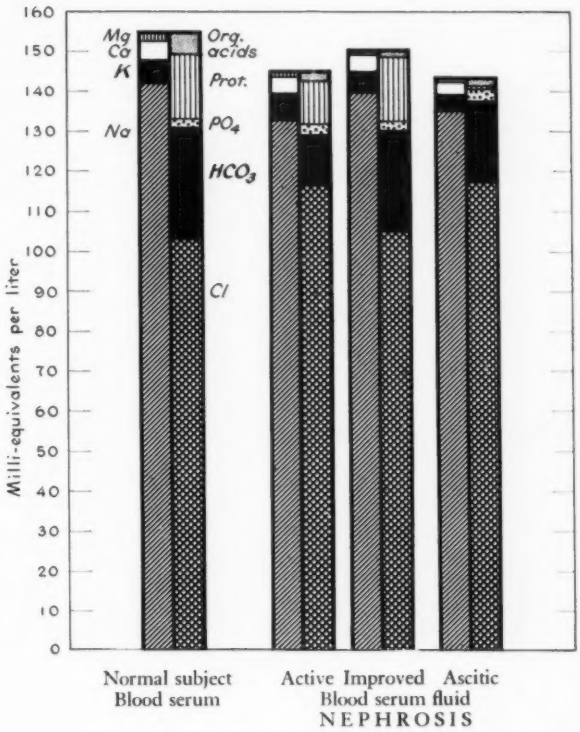


FIGURE 7. Characteristic electrolyte pattern of patients with nephrotic syndrome at height of active stage and again subsequent to recovery. Compare with normal. Electrolyte pattern of ascitic fluid shows similar changes.

I WOULD like to point out next in connection with this reaction to pitressin what we are finding out from work on the electrolytes in nephrosis. Workers in Switzerland and at Columbia University in particular have reported important disturbances in the sodium bicarbonate and chloride content of the blood and benefit from alkali therapy. The chronically edematous, anorexic child on a low-salt and supposedly high-protein intake often remains waterlogged despite repeated transfusions of plasma, whole blood, or salt-poor human serum albumin. It has been found by these workers, and by ourselves also, that there is a kind of storage, if you wish, of chloride, and depletion of sodium. We have gone too far in starving the patient of sodium on the assumption that retention of this element is solely responsible for the water retention.

Others have not given such an explanation, but we believe that excessive dietary restriction of sodium and the retention of chloride to compensate for loss of other anions are responsible in part for the distortion of the electrolyte pattern. Some sodium goes from the surrounding interstitial fluid into the cells, according to one view of the problem; the patient gets an intracellular edema and loses some of his potassium; chloride is held in the extracellular body fluids in large amounts, resulting in acidosis because of the low sodium content. In connection with the pitressin study which we made some years ago, it was found that, even after the edema had been discharged, there was still a lot of extra sodium chloride which was excreted subsequently (Figure 6).

Expressed in milli-equivalents, the electrolyte content of normal serum is as follows: sodium about 142, potassium 5, calcium 5, magnesium 3, protein 16, carbon dioxide 27, and chloride 103 per liter. Remember, these are so-called physiologic constants. They represent the homeostatic efforts of the body to keep things steady, and there are many mechanisms for controlling them. In chronic nephrosis, as shown in Tables 2 and 3, the values may become very different. The average sodium value for 10 of our cases was 130 instead of 142 meq. Most of the potassium values obtained were normal. In some of our cases with chronic nephritis, potassium was elevated; in others it was occasionally below normal. The average serum protein of edematous patients was 8 meq., just half the normal amount of protein. The carbon dioxide values ranged between 12 and 23 meq., while the chloride ranged between 106 and 116 meq. in severe cases.

When patients showing such distortions are given alkali therapy (sodium bicarbonate, sodium acetate, and sodium citrate), they may at times

show great improvement. If the acidosis can be overcome, the patient suddenly shows an alkaline swing in his urine *p*H and then gradually loses his edema and pours out this extra chloride, according to the report by Fox and McCune. What is needed is sufficient sodium and bicarbonate ions to restore the blood to normal, and a very low chloride intake should be maintained. Of course serum protein restoration is essential. This we are giving in our high protein diet, and the protein in the administered plasma. After the patient has had a remission, the electrolyte pattern tends to return to normal.

To express it, as Gamble has, in a sort of picture form, which has become so common that nearly everyone is acquainted with this way of expressing acid and base values, Figure 7 is presented. It gives the basic ions on the left and the acid ions on the right side of each double column. This first column shows a normal picture of the electrolytes in the blood serum. If we could just preserve that all the time, we would undoubtedly have less difficulty in controlling these patients.

Here is also shown the complete electrolyte pattern of a patient with chronic nephrosis in active form (second column). You note that his chloride, as indicated for an average of figures obtained, is significantly elevated; his carbon dioxide, sodium, and serum protein values are low compared with the normal. The third column shows figures obtained after treatment. There is a return to practically the same general picture as that representing the normal. On the extreme right is the ascitic fluid when the patient was in the active, very edematous stage. The distortion of the electrolyte pattern is similar to that in the blood, although the changes are not identical.

Table 4 contains our only proof that this electrolyte disturbance is a result, in part, of the diet. We have data from 2 early cases averaged here. The patients were very edematous. Yet we saw them so early in their first attack that the sodium was normal, 142 to 142.6; the potassium was within normal range; the value of the carbon dioxide was beginning to go down a little, perhaps; the protein alone was low. You note that the chloride was normal, but the cholesterol was already double the normal value. The serum albumin was lower than the globulin.

If we put such a patient on a diet too low in sodium but with enough chloride that he can store it, he will finally suffer from depletion of sodium and go into a state of chronic acidosis, which in itself is rather bad for the cells of the body.

Interesting examples of the importance of electrolyte disturbances in chronic nephrosis are presented in a recent article by Fox and McCune of Columbia University. One of their patients had a spontaneous diuresis, one of the bizarre tendencies these patients show, while balance studies were being made. Not infrequently after an attack of some acute infection, notably measles, a patient will suddenly lose all his edema and seem to be well without any other change in his regimen.

The child referred to had been brought to the hospital with very marked edema, typical of such cases. The amounts of sodium, chloride, and potassium excreted in his urine were very low. Then, as a result of spontaneous diuresis, he lost his edema and his body weight dropped from 46 to 31 kilograms, and the sodium and chloride were excreted in very large amounts. Even after he had lost weight down to 31 kilograms, at which level he remained practically stationary, he still poured out sodium chloride, chloride more than sodium, and some extra potassium. This indicates that he was getting rid of something that had been holding the edema. Long afterwards, on the thirty-third day, he continued to excrete more than he did originally. Excretion was not far from normal, except the chloride was higher than the sodium; usually it is the reverse.

A similar patient treated deliberately on this basis was followed over forty-five days. When the authors gave him sodium lactate, which is rather easy to give, in doses of 5 to 15 gm. (1 to 3 or 4 teaspoons), or an equivalent amount of baking soda, each day, he finally began to show a little rise in urine and sodium output. The sodium was more concentrated in the urine than it had been previously, and then suddenly the diuresis started and he had a daily output of 5.5 liters of urine—a very striking response. If the weight of such a patient can be held at the normal level, it is obvious that progress is being made.

The mode of management and our resources for treating these cases are summarized in Table 5. When you have such patients in the hospital they are a "bugaboo" to you. You know that they are highly susceptible to infection and that the mortality is high. The outlook is not very good unless they are treated adequately in the early stages.

TABLE 4

SERUM ELECTROLYTES IN EARLY UNTREATED CASES OF NEPHROSIS

(Per Liter)

SODIUM	POTASSIUM	PROTEIN	CARBON DIOXIDE	CHLORIDE
		(meq.)		
Average values for normal children				
142	5	16	27	103
Average values for two children with acute nephrosis (ordinary diet; no previous therapy)				
142.6	4.8	13.1	25.6	104

TABLE 5

SUMMARY OF RESOURCES FOR TREATMENT OF NEPHROSIS

1. Eradication of infections, if present, by antibiotics, surgical drainage, etc.
2. Diet: high in protein, calories, and vitamins; low in Cl and lipids (given by nasal tube, if necessary).
3. Blood: (a) serum, plasma, or whole blood; (b) concentrated salt-poor human serum albumin.
4. Diuretics: Mercupurin (single dose) or urea as adjunct to above, if necessary.
5. Alkaline therapy ($NaHCO_3$, Na lactate and K acetate), if distortion of the electrolyte pattern is marked.
6. Sustained pitressin antidiuresis and abrupt withdrawal as adjunct in uncomplicated cases.
7. Measles (modified in severity by gamma globulin or serum given on fourth or fifth day after exposure) has induced remission in some patients deliberately exposed to the disease as a last resort.

We will just mention what can be done. Eradication of infections that may be present is essential. The diet must be high in protein because of the great depletion of body proteins and the need to build new serum proteins. A sufficiently high caloric diet must be provided to meet the patient's daily needs or he will use up what protein you give in the form of blood plasma in his body metabolism. The diet should be high in vitamins, low in chloride, and low in fat and fat-like substances, particularly cholesterol.

Of the agents for intravenous administration, the most active from the colloidal osmotic pressure viewpoint is the new concentrated salt-poor human serum albumin. It is very expensive and you have to give a huge amount of it. Even in a normal person, you can give only so much of it before it leaks through the kidneys. In these individuals with severe nephrosis the leakage is much worse, so they lose a good part of what is given; yet it does have a special place. Whole blood or unrefined plasma or serum is much cheaper and more readily available. Crude human serum naturally contains some sodium chloride but not enough, we think, to deter our use of it in most cases. We can use whole blood transfusions if the patient is anemic. If he is not anemic, we prefer to use ordinary serum or plasma. It is better to give that from known donors than to give mixed or pooled plasma, such as that collected during the war by the Red Cross, which may contain the virus that causes hepatitis similar to the epidemic type.

At the height of treatment in stubborn cases, you may find that over a comparatively short period you have given as much as three times the blood serum or plasma normally present and the patient still does not have a diuresis. Fluid from the extra vascular spaces increases the blood volume, placing a strain on the heart. At such times we give urea or some other diuretic in sufficiently large doses to initiate diuresis. Parathormone is often effective. (See Figure 2.) Mercupurin, a combination of a mercurial and a purine diuretic, has proved best in our experience. It should be used only once or twice; marked impairment of renal function contraindicates its use.

To give the diet to such a water-logged patient with a poor appetite, you may have to give it in liquid form by means of a tube, or teach him to pass the tube and feed himself. The alkaline solutions, required if acidosis is present, may be given in like manner at appropriate times.

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Diagnostic Clinic

Painful Conditions of the Foot and Ankle

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In a normal leg, a plumb line dropped from the center of the hip joint (Figure 1), through the middle of the patella, should bisect the leg and point to a spot between the first and second toes. In the pronated foot the line falls medialward, producing stress and strain, a defect which is bound to be followed by disability sooner or later.

The same situation illustrated from the rear, is seen in Figure 2. A plumb line dropped from the middle of the popliteal space should bisect the calf, the Achilles' tendon, the astragalus, the os calcis, and then fall into the position shown in the normal foot. A plumb line dropped from the middle of the popliteal space of the person who has a flat foot (Figure 2*b*) will hit the astragalus a glancing blow. It does not bisect the astragalus, the Achilles' tendon, or the os calcis. The inward curving of the Achilles' tendon is the so-called Helbing sign. This mechanism cannot function normally.

Figure 3 shows the position of the bones in a normal foot, with the astragalus, os calcis, scaphoid, cuneiform 1, first metatarsal, and the big toe with its sesamoid. The lower part of the illustration shows the relationship of the astragalus, os calcis, scaphoid, and cuneiform 1 in a flat foot. The arch is down; that does not mean it is a painful foot, but sooner or later it will be.

If we were to look at this illustration from the top, we would note the point of support in the normal, and the point of support in the abnormal or flat foot, showing the gaping of the bones on the medial border and compression on the lateral border. With the gaping of these bones you are bound to have stretching and weakening of the ligaments which traverse these joints, producing pain.

The four principal tendons of important muscles are the tibialis anticus, the tibialis posticus, the flexor hallucis longus, and the Achilles' tendon. They must work correctly in order to have smooth performance and comfort.

The patient with a painful foot and ankle is interested in one or more of three things, and they all begin with D; discomfort, deformity, and disability.

What are the deformities? The talipes equinus with the toe drop, talipes calcaneus with the heel drop, clubfoot, exaggerated pigeon toe, extreme equinus, and the valgus foot. The most common foot and ankle deformities are shown in Figure 4.

Disturbances of the foot and ankle may be congenital, infectious, traumatic, mechanical, paralytic, or arthritic. Occupational and industrial conditions, tumors, and a large group of miscellaneous conditions such as circulatory, glandular, and metabolic, are contributing factors. They are called minor conditions, but to the patient they may be major.

FLAT FEET

The chief causes of flat feet are hereditary, static, traumatic, infectious, occupational, or glandular. Obesity is a very important factor, for whether it causes the flat feet or not, it aggravates them and keeps them painful.

We have a boy here, sent to me by Dr. Joe Brown of Cleveland. He was sent in because of flat feet. He has two very flat feet, but they are good feet. He says they were flat since he was 3 years old; I am sure he had them the day he was born. This patient presents an exact duplicate of Figure 1—a plumb line dropped from the middle of his knee cap will fall medialward. This is so extreme

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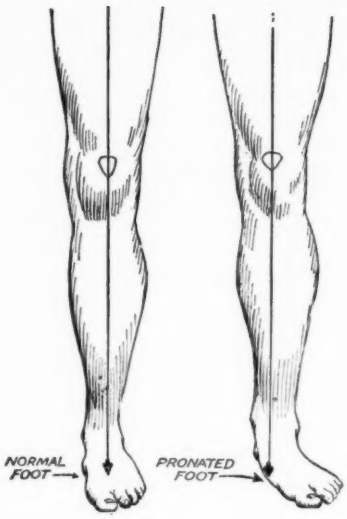


FIGURE 1. *(Left)* Plumb line dropped from center of hip joint passes through middle of patella and points toward a spot between first and second toes in normal balance; in cases of pronated foot the line falls medialward.

FIGURE 2. *(Right)* Plumb line dropped from back of knee. *a.* Normal. *b.* Positive Helbing sign in pronated foot. (Figures 1 and 2: Lewin, *Am. J. Dis. Child.*)

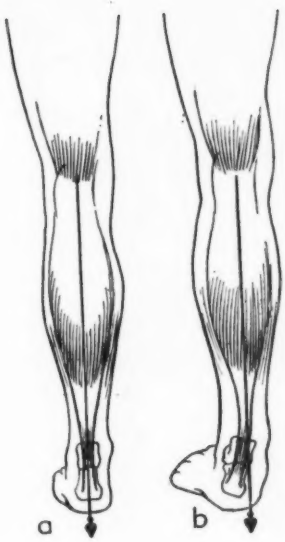


FIGURE 3. *a.* Normal inner side of foot. *b.* Flatfoot, inner view, showing depressed arch and joint separation. (Lewin, "Orthopedic Surgery for Nurses," W. B. Saunders.)

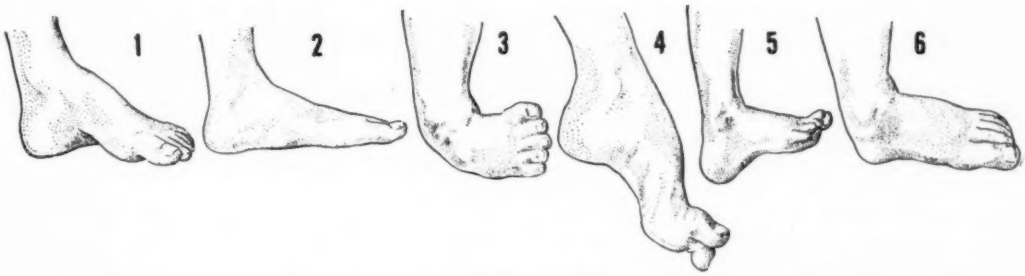


FIGURE 4. Most common foot and ankle deformities: 1. Pes cavus (high arched foot); 2. Pes planus (flatfoot); 3. Talipes equinovarus; 4. Talipes equinus; 5. Talipes calcaneus; 6. Ankle valgus. (Whitman, "Orthopedic Surgery," Lea & Febiger.)

that his Achilles' tendons, instead of coming down perfectly straight, curve in. This fellow has worn plates and has had a lot of shoe modifications. It looks like he has double scaphoids and x-rays might show accessory bones. The first thing to do is get his feet parallel instead of splayed out.

This is an operative case, or it will be sooner or later, although he has no symptoms now. When

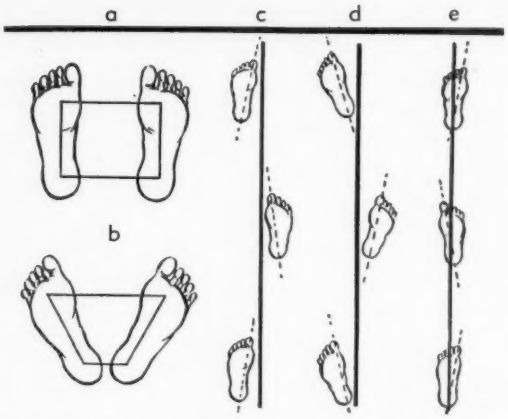


FIGURE 5. *a.* Four-square position, standing, correct. *b.* Military position, standing, incorrect. *c.* Four-square position, walking, correct. *d.* Military position, walking, incorrect. *e.* Indian position, walking. (Lewin, "Orthopedic Surgery for Nurses," W. B. Saunders.)

they are as extreme as this, sooner or later they get in trouble. If he gets the slightest bit of arthritis in these feet they are going to be rigid flat feet, one of the most resistant conditions any orthopedic surgeon can be called on to treat.

The treatment of flat feet includes rest and local applications, walking properly (Figure 5), modification of shoes, supports, exercises, massage, contrast sprays, and operation. The operations are chiefly closed manipulation and casts and open operations on bones and soft tissues.

A soldier at Camp Grant in 1917 was sent in from one of the regiments. As shown in Figure 2*a*, a plumb line dropped from the middle of the patella should fall at a certain point in the normal foot. This man's situation violated that criterion. He had rigid flat feet; he couldn't stand long enough to be counted; he couldn't drill; he couldn't march. Of course, he was immediately discharged.

Rigid flatfoot is a very difficult condition to treat. It requires months of treatment and usually necessitates surgery on the bones as well as the soft tissues, plaster casts, crutches, and rehabilitation.

ONE of the most valuable things you can do for a patient who has flat feet is to tip his weight to the outer borders of the heels. This can be accomplished by a Thomas heel, first described about seventy years ago by Hugh Owen Thomas of Liverpool. Many people have modified it but nobody has improved upon it.

A good Thomas heel can be made simply by prolonging the inner border of the heel forward 3/4 of an inch and raising its inner border 3/16 of an inch. I measured about 10,000 feet before I came to that conclusion. This heel usually brings the weight-bearing line to normal. This is a method of tilting the heel to the outer border and the sole to the inner border. You compel the patient to tip his weight to the outer border of his heel and then as he comes up on his toes he tilts his weight back to the big toe like a sprinter starts. You cannot do that with a shoe that has a steel shank, and 98 per cent of men's shoes have steel shanks. Therefore, you first remove the steel shank; second, you raise the inner border of the heel, and third, the outer border of the sole. The most commonly prescribed modifications of shoes can be seen in Figure 6.

The patient wearing this shoe (Figure 7) will transmit his weight in the sequence of bearing points shown in *b*: (1) the back of the heel; (2) inner border of the heel; (3) outer border of the sole, and (4) the big toe joint.

The view of the Thomas heel and metatarsal crescent in Figure 7*a* shows that the heel is higher on the inner border and longer on the inner border. The metatarsal crescent is higher on the outer border than on the inner border. Please note that we say inner border and outer border, not inside and outside, because that will confuse you.

The relation of the scaphoid and first cuneiform bones in the flat foot and the correction resulting from this method of treatment are shown in Figure 7*c* and *d*.

Now what goes into the shoe? There are steel plates, plastic plates, German silver plates, and rubber inserts. I prefer the use of bevelled felt pads. These afford a resilient support and help the circulation instead of hinder it. The pads should go into natural hollows and are inserted directly into the shoes and held by means of rubber cement.

METATARSAL ARCH DISTURBANCES

The causes of *metatarsal arch disturbances* are usually the same as in the flat foot, and the main classifications of treatment are the same. I want to add two causes that are not on the list: one is the habit of resting on the toes while sitting; the other is the neurofibroma of the lateral plantar nerve.

The *Morton syndrome* consists of a short first metatarsal bone, hypertrophied second metatarsal

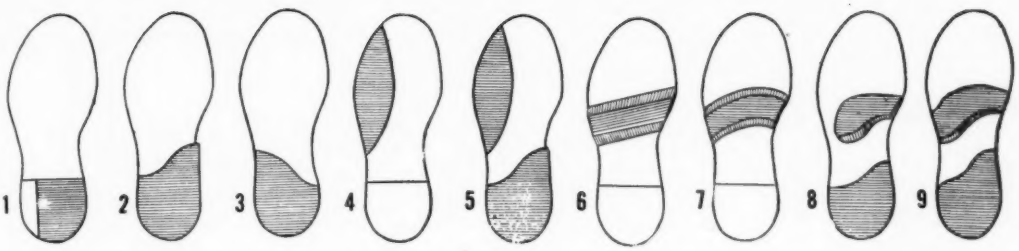


FIGURE 6. Most commonly prescribed modifications of shoes (right shoe shown). 1. Elevation of inner border of heel; 2. H. O. Thomas heel—inner border prolonged and elevated; 3. Reversed Thomas heel; 4. Elevated outer border of sole; 5. Combined Thomas heel and elevated outer border of sole (flexible shank); 6. Robert Jones metatarsal bar (anterior heel); 7. Lewin rubber metatarsal crescent; 8. Thomas heel plus Hauser metatarsal comma bar (flexible shank); 9. Thomas heel plus Lewin tilted, notched, rubber metatarsal crescent (flexible shank). (Lewin, "The Foot and Ankle," Lea & Febiger.)

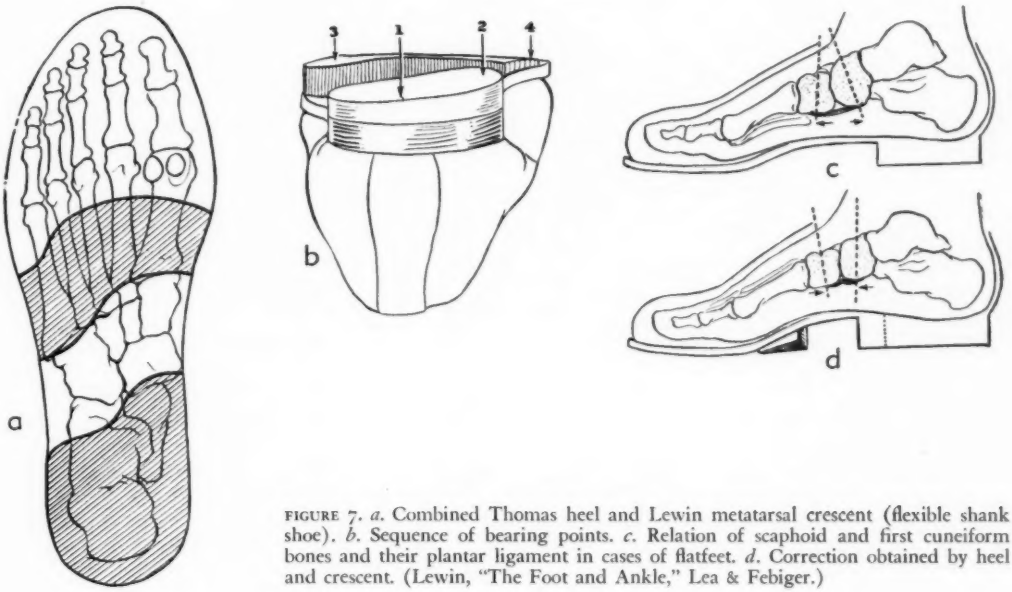


FIGURE 7. *a*. Combined Thomas heel and Lewin metatarsal crescent (flexible shank shoe). *b*. Sequence of bearing points. *c*. Relation of scaphoid and first cuneiform bones and their plantar ligament in cases of flatfeet. *d*. Correction obtained by heel and crescent. (Lewin, "The Foot and Ankle," Lea & Febiger.)

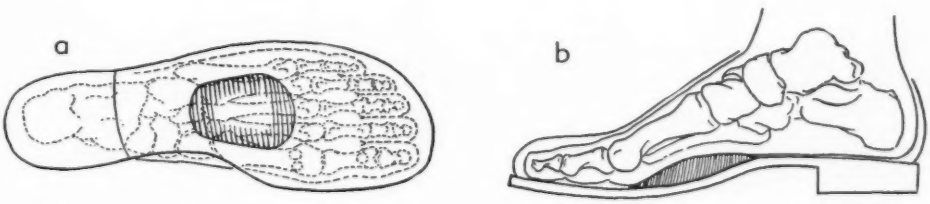


FIGURE 8. *a*. Position of bevelled felt pad for metatarsal arch with relation to the metatarsal bones. *b*. Position of pad in shoes. (Lewin, *Am. J. Surg.*)

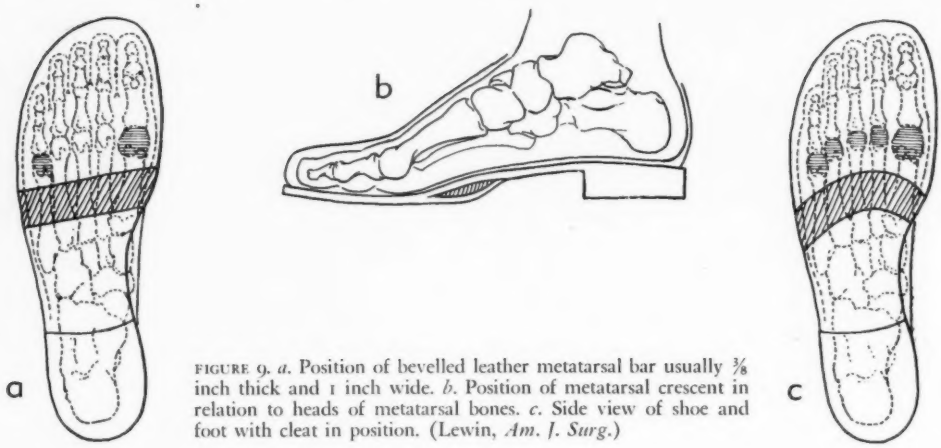


FIGURE 9. *a*. Position of bevelled leather metatarsal bar usually ⅜ inch thick and 1 inch wide. *b*. Position of metatarsal crescent in relation to heads of metatarsal bones. *c*. Side view of shoe and foot with cleat in position. (Lewin, *Am. J. Surg.*)

bone, posteriorly displaced sesamoids, and a tender spot at the bases of the first and second metatarsals and the first cuneiform bone.

Now we come to a simple method of relieving some patients suffering from metatarsalgia; that is, putting a felt pad in the shoe to support the metatarsal heads. The pad must be just behind the metatarsal heads, as shown in Figure 8, which illustrates its position with relation to the metatarsal bones and the position of the pad in the shoe.

In World War I Sir Robert Jones used a leather metatarsal bar placed in the shoe as shown in Figure 9*a* to support the metatarsal arch. When I got down to Camp Taylor in 1918 I realized that there might be something better than a straight object to support a curved structure. I began experimenting with a metatarsal crescent. It seemed to me if you wanted to support a curved structure you should use a curved object. The crescent can be either leather or rubber. Figure 9*b* indicates the position in relation to the heads of the metatarsal bones, and 9*c* gives a side view of the crescent in position in the split sole. Now we put most of them on the bottom of the sole.

HALLUX VALGUS

An example of hallux valgus and bunions can be seen in Figure 10. *A* and *b* show the deformity before operation, *c* and *d* the results obtained from surgery.

Figures 11 and 12 illustrate the McBride operation for hallux valgus, the chief contribution of

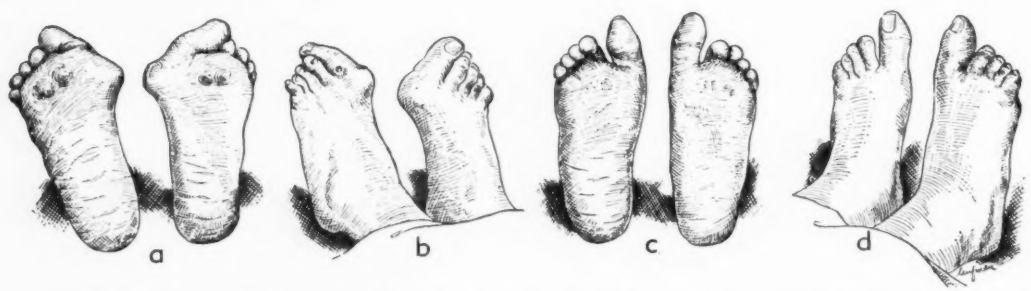


FIGURE 10. Hallux valgus and bunions. *a and b*. Before operation. Note plantar calluses. *c and d*. After operation. (After Porter, *Surg., Gynec. & Obst.*)

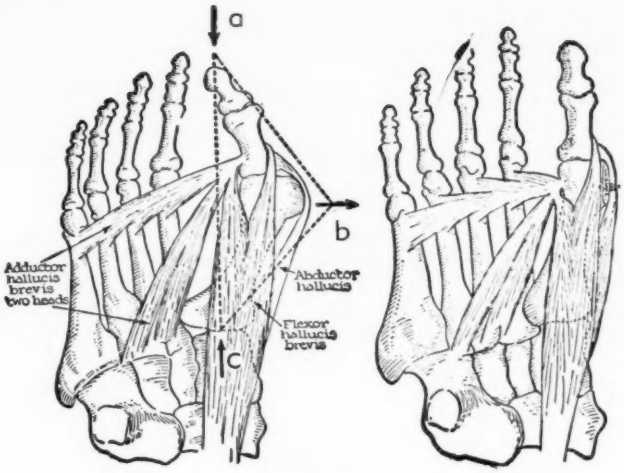


FIGURE 11. *(Top, left)* McBride operation for hallux valgus. *Left.* Insertions of adductor, abductor, and flexor bevis muscles in base of proximal phalanx. Arrows a, b, and c indicate the direction of forces that create the valgus deformity. In the valgus position the adductors and lateral head of the flexor hallucis brevis produce a rotating force. *Right.* Shows relations at end of operation.

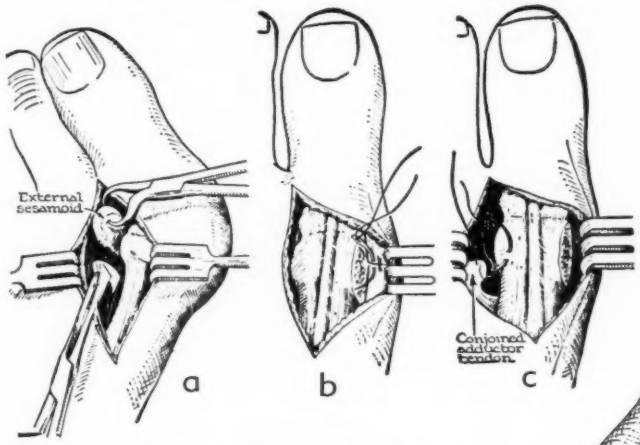
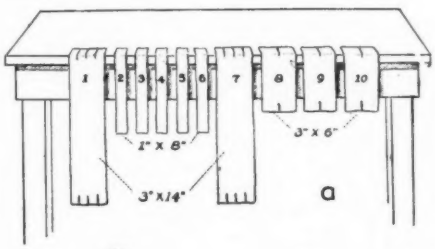


FIGURE 12. McBride operation for hallux valgus. *a.* Technic of removal of the external sesamoid. *b.* Hypertrophied portion of the metatarsal head has been excised and capsule shortened sufficiently to maintain the two in normal alignment. *c.* Transplanting the conjoined adductor tendon to the metatarsal head. (Figures 11, 12, and 13 from Lewin, "The Foot and Ankle," Lea & Febiger.)



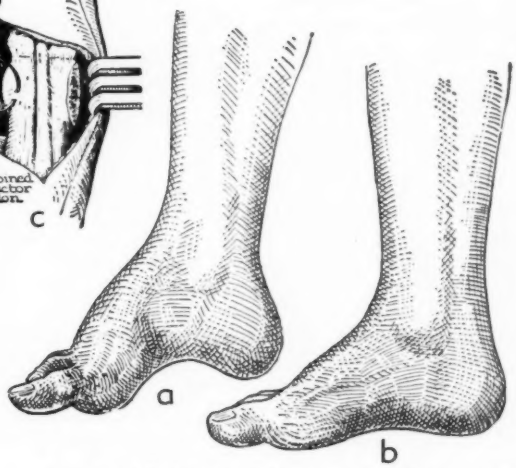


FIGURE 13. *(Right, above)* Pes cavus: *a.* Before operation; *b.* After Hoke operation.

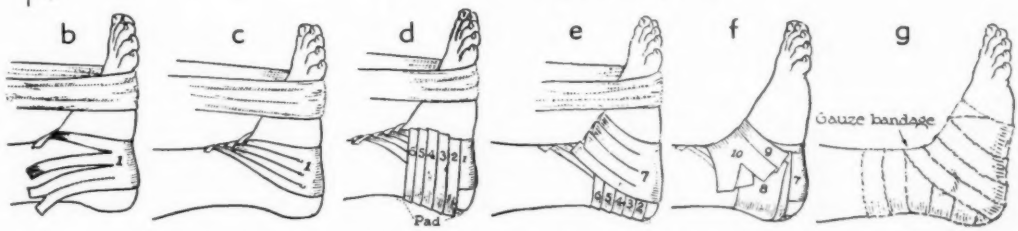


FIGURE 14. *(Left, above and bottom)* Adhesive strapping of ankle. (Lewin, "Orthopedic Surgery for Nurses," W. B. Saunders.)

which is the cutting of the adductor hallucis, the conjoined tendon, and removal of the lateral sesamoid. Originally the operation was proposed to release the deforming factor as shown. Very often it is necessary simply to cut it and let it go, but if you want to make doubly sure you suture it either through a hole or to the periosteum so that it acts as a corrective factor. You remove the exostosis from the head of the first metatarsal and lengthen the extensor hallucis longus tendon. It is not necessary in every case but is the best operation for most of these patients.

CALCANEAL SPUR

We have a patient here, a boy, with a painful heel, periostitis, *calcaneal spur*. I want to warn you about chiseling off the spur. If you chisel off a calcaneal spur I will almost guarantee that a year or two later there will be one just as big or bigger there. Try to find out what the mechanics are, try to correct them, try to make the patient comfortable; change the metabolic picture (they are all eating too much meat, fish and eggs). Correct all those things and if relief is not obtained, then chisel off the spur.

OTHER CONDITIONS

Pes cavus, or high longitudinal arch, is a very disabling condition. The arch looks like the kind a sculptor would choose for a model (Figure 13).

I have a boy here with a painful heel. The apophysis of the os calcis is fragmented and irregular; the epiphyseal line is irregular. It looks as though it were made of ice, and you took the handle of the icepick, gave it a blow and got this fragmentation.

The first case of this condition (known as *apophysitis of the os calcis*) that I saw had been operated on under a mistaken diagnosis of tuberculosis. I had a case in my office two weeks ago and simply putting a felt pad in his heel gave him complete relief. Most cases are seen in September and October in children who have recently returned from camp. Sometimes we remove the shoe counter.

In cases of *bursitis,* padding the shoes and removing the counters will sometimes relieve the condition; x-ray therapy helps.

Some of the pads which will make these patients comfortable are: metatarsal, longitudinal, heel cushion pad, and one for a calcaneal spur. You can do some remarkable things by putting these on the feet and in the shoes, and a little experience will make you quite expert at doing it.

Rupture of ligaments—The most important injury to a ligament in the foot is rupture of the fibular collateral band. If unrecognized and unhealed, it produces a weak, inadequate, incompetent ankle which may be vulnerable to strains and sprains for many years. The diagnosis can be made immediately by general or local anesthesia, hyper-inverting both feet and making x-ray projections of both ankles on the same film.

A person with this condition may become disabled by twisting his ankle by stepping on a cobblestone.

Severe Sprain—Using novocain anesthesia—if you can determine that the astragalus is practically subluxated from the tibia—sew up the lateral ligament if you want to save the patient from having a chronically disabled foot and ankle.

Figure 14 illustrates a method of strapping for a severe sprain, but not a tear of the lateral ligament. I recommend this method to you as the basis for strappings which can be modified to meet individual situations.

The patient holds his foot in proper position by means of a strip of bandage. We use compound tincture of benzoin, or sealskin, which looks like collodion but isn't, and which works wonderfully. It acts like another layer of skin to which the adhesive sticks instead of to the skin. It makes the strapping easier to wear and easier to remove.

You learn from experience where the adhesive is liable to irritate. We protect the dorsum of the foot with a little piece of felt; there is also apt to be irritation over the Achilles' tendon, so another strip of felt is placed back there.

As can be seen from Figure 14, each strip of adhesive has three little notches in it so that it is easy to tear and apply; there must be no wrinkles. The exact position of the strapping will depend on the tissues that you are trying to support most.

The strapping is completed with ordinary gauze bandage. It looks like a lot of adhesive, but I have never seen a patient who could not get the shoe on that he or she wore into the office.

The patient immediately wonders, "How can I wear this? How can I take a bath in it?" Supply him with a waterproof cover.

Diagnostic Clinic

Surgical Diseases of the Lungs

EVARTS A. GRAHAM*

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, ST. LOUIS

I AM going to ask Dr. Crippen to present the main features of this first patient.

DR. DONALD A. CRIPPEN: Mr. A. M. is a 59-year-old white male who was admitted to the Cleveland City Hospital on May 12, 1948, with a history of six months with a chronic, slightly productive cough. Two weeks prior to admission there was accentuation of the cough and he developed pain in the right chest which was sticking in nature and was accentuated by the cough and deep breathing. On several occasions the patient brought up blood-streaked sputum.

He felt better in approximately a week, but the cough persisted. There was no weight loss and no previous illness of significance.

Admission examination was essentially negative except for a few râles, fine and coarse, at the right base, with slightly diminished breath sounds in this area. Red blood count was 4,900,000; white blood count 10,400; differential normal; hemoglobin 16 grams. Urine was normal; blood chemistries were normal.

X-ray of the chest at that time revealed an infiltration in the right mid-lung field.

The patient was given intramuscular penicillin and improved subjectively in a few days. The chest film on May 24, 1948, however, revealed infiltration still present in the right mid-lung field. The patient continued to run a low-grade fever of 37.8° to 38.5° C. and had a hemoptysis of several ounces on May 27, 1948. Several chest films on June 2 still showed no clearing of the infiltration in the right lung.

Several sputum examinations were negative for acid-fast bacilli, and the tuberculin test, first strength PPD, was negative.

Bronchoscopy on June 8, 1948, revealed old blood coming from the right upper lobe orifice. No detail could be seen. Bronchograms on June 18, 1948, showed complete lack of filling of the right upper lobe bronchus. Repeat bronchoscopy on June 22, 1948, revealed an apparent tumor mass extending from the right upper lobe orifice. Biopsy, however, was not positive for carcinoma.

Exploratory thoracotomy was performed on July 2, 1948, and an inoperable bronchogenic carcinoma was found extending to the superior vena cava, azygos vein, and through the hilar structures into the mediastinum. A biopsy of the lesion was taken. Diagnosis was poorly differentiated squamous cell carcinoma.

Postoperative course was uneventful. The patient was given postoperative irradiation, a total of 6,000 r., to the right upper chest—anterior, lateral, posterior 2,000 r. each. His progress has been slowly downhill since discharge from the hospital on August 8, 1948.

DR. GRAHAM: In the first of three films of this patient, there is a large shadow in the right upper part of the chest. The second film shows a lack of adequate filling of the right upper lobe bronchus with lipiodol, while the last film shows that there has evidently been some clearing of the shadow.

In summary, we have a middle-aged male patient, about 59 years of age, who developed an intractable cough sometime last winter, and he coughed up blood in May.

Whenever one is presented with a case of a male

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of middle age who has developed an unexplained cough with sputum which is blood-streaked, the chances are overwhelming that the patient has a bronchogenic carcinoma. Some of you may think that this is an absurd statement in view of the fact that there are other pulmonary diseases which result in cough and blood-streaked sputum, such as tuberculosis, bronchiectasis, and so forth, but nevertheless the statement which I made on a statistical basis is a correct one.

Of all the conditions which are likely to produce bloody sputum, the most serious one by far is bronchogenic carcinoma. Therefore, we should no longer regard this disease as a rare one, a rather curious phenomenon, but we should be impressed with the fact that it is a very common disorder; indeed there is some evidence now to indicate that it is perhaps the No. 1 visceral cancer in men. At present no one can explain this great increase in frequency, but a few years ago Ochsner and DeBakey found at the New Orleans Charity Hospital—a hospital which does not have referred cases—that actually this constituted the No. 1 visceral form of cancer in that institution. Furthermore, in some unpublished studies made at the St. Louis City Hospital, which is likewise a charity municipal hospital that does not receive referred cases, for a preceding five-year period the No. 1 visceral cancer was bronchogenic carcinoma. In men it is more common than cancer of the stomach or the colon or any other form of visceral cancer.

Therefore, everybody should be attuned to the idea that this is a very common disorder, a very serious disorder, and one should suspect at once, when he has the typical clinical syndrome present, namely, that the patient is a male, develops an unexplained cough, and gets blood-streaked sputum that that patient has a bronchogenic carcinoma. If those symptoms are reinforced by x-ray findings of atelectasis or some abnormal infiltration of the lung, that makes the diagnosis even more suspicious of a bronchogenic carcinoma.

THE x-ray cannot diagnose a bronchogenic carcinoma. It can only make us suspect a little more that the patient has a bronchogenic carcinoma. It is impossible and difficult to diagnose bronchogenic carcinoma from the x-ray alone. However, when the cancer arises in a large bronchus (and most cancers do arise in large bronchi), it causes obstruction of the bronchus sooner or later. That means, in turn, atelectasis behind the obstruction, and we can see the atelectasis in the x-ray; if we give the patient lipiodol, as was done here, we also see an obstruction of the bronchus.

When we have a patient who has suspicious symptoms of a bronchogenic carcinoma, it behooves us to find out as unequivocally as possible whether or not he does have a bronchogenic carcinoma because of the great seriousness of this disorder.

What can be done to find out? For one thing, bronchoscopy. Bronchoscopy is a very important adjunct in the diagnosis, but it does not give results in 100 per cent of cases. Indeed, it is now becoming rather generally recognized that in only about 65 per cent of patients with bronchogenic carcinoma can one obtain a positive bronchoscopic visualization with biopsy. The diagnosis can be helped along by examination of the sputum and of bronchial washings for cancer cells. Examination of the sputum for cancer cells is a tedious process. It requires an expert, one who can recognize the cancer cells when he sees them, and that is not always easy. Sometimes it takes as much as two or three hours of examination of a specimen of the sputum before one can be certain that cancer cells are or are not present.

With the assistance of the more recent examinations of the sputum and bronchial washings for cancer cells, we can boost the percentage of positive diagnoses up another 15 per cent, making approximately 80 to 85 per cent of correct diagnoses by those means. There will remain, however, between 15 and 20 per cent of patients in whom a positive diagnosis cannot be made without an exploratory operation. I may say, however, with some repetition, that whenever we have a male patient (and I emphasize the fact that it is a male, because this disease is five times as common in males as it is in females) of middle age who has an unexplained cough with blood-streaked sputum, we can be almost certain that he has a bronchogenic carcinoma. By unexplained cough, I mean that if we can exclude the two main factors which otherwise produce bloody sputum, namely, tuberculosis and bronchiectasis. Therefore, we are justified in not only recommending but in strongly urging an exploratory operation in such individuals when we cannot make a positive diagnosis otherwise.

I may say that from our own experience we have very seldom been wrong when we have made an exploratory operation simply on the basis of the clinical features themselves.

A few years ago it did not make much difference whether one made a diagnosis of bronchogenic carcinoma or not. It was largely an academic question because there was not very much that could be done in a curative way for the patient. It so happened that in April, 1933, I was confronted with a patient, a doctor, who had a bronchogenic carcinoma of the left upper lobe of his lung. My intention was to do an upper lobectomy, but I found when I got in that I could not get out all the cancer and leave him an open airway to his lower lobe by removing all of the cancer and the upper lobe alone, so I decided to remove the entire lung. This man is living and well. He is in his sixteenth postoperative year. He had a squamous carcinoma of the upper lobe bronchus. That was the first operation of this sort that had been performed, and it has been followed by this sort of operation now throughout the world in I don't know how many cases; at any rate I can say that everybody is agreed now that there is very great hope for a patient who has a bronchogenic carcinoma if the condition can be diagnosed early enough for operation.

Just as a matter of a few statistics, I will say we have had 1,160 cases of proved bronchogenic carcinoma—nearly 1,200 cases—and there have been 203 total pneumonectomies of this number for malignant tumors. Some of the cases in this series of nearly 1,200 went back before 1933, but here is a point which I wish to stress: that we find now even going back to a period when the operative mortality was high for this condition, it is nevertheless possible to show in our own series 28 per cent of five-year cures of patients with positive bronchogenic carcinoma. Many of these patients were operated on at a time when the operative mortality was very high, even as high as 53 per cent. I will say, however, that the operation has now become a thoroughly safe procedure, at least thoroughly safe for such a serious condition, and instead of a 53 per cent hospital mortality rate following the operation of total pneumonectomy for this condition, our most recent mortality rate in the last 50 cases has been 5 per cent; in the last 100 and some cases it has been 9 per cent.

I do not like to emphasize operative mortalities except for the fact that it seems to be necessary to convince doctors in general that it is worth while for a patient with bronchogenic carcinoma to have an operation. Too often the feeling exists, "Well, the patient has a slim chance of going through the operation anyway, and probably he hasn't got much chance to have a permanent recovery either, so what difference does it make whether or not we make a diagnosis?" I mention these statistics chiefly to show that it is worth while to operate on these patients. The mortality is not excessive.

I will say also that most patients are able and ready to leave the hospital within two weeks after the operation. There is a respectable mortality and there is a chance of at least 28 per cent five-year survival. I suspect that in another five-year period it will be possible for anyone to show that the five-year survival is very much higher than 28 per cent because of the lower operative mortality now.

I may say also that when one is talking about operative mortality one has to consider how radical is the person who is operating. Some who are more radical than we are at the Barnes Hospital have a higher operative mortality than we do. By being more radical, I mean trying to get out the disease under conditions in which often we think that there is no hope of eradicating the whole disease. That is a different subject, however, which I will not take time to go into here today. But operative mortality will vary, of course, depending on the selection of cases and the sort of chance which the surgeon takes.

The most unfortunate thing about these patients is that so many of them reach the surgeon at a time when they are hopeless, as is the case in the patient described earlier. As a matter of fact, in our own cases we are confronted by the very sad figure that in only about 25 per cent of the patients who come to us is the condition resectable, and in practically all these cases which are not resectable the tumor has been neglected, I regret to say, too often by delay on the part of the doctor who has had the patient in his charge. He is too much inclined to say, "Well, let's observe this man for a while and see what happens. Maybe this shadow will clear up; maybe his bloody sputum will stop; maybe we can control his cough in some other way. We will give him penicillin for a while and see what happens." Well, penicillin won't cure a bronchogenic cancer. It will clear up some of the infection which is very likely to be present, but it will not cure the cancer, and the possibility of bronchogenic carcinoma is something far more serious than the possibility of some infection which might be cleared up by penicillin or some of the new drugs.

Again I want to emphasize that from the standpoint of the general practitioner there is nothing so very difficult about this situation of bronchogenic carcinoma. The patients nearly always present a pretty typical set of symptoms, and when those symptoms and signs are present the job of the doctor is to see that the patient gets into the hands of those who can go on and complete the diagnosis. No one can expect the general practitioner to be adept in the various arts which are required to complete the diagnosis, but at any rate he can get the patient into suitable hands.

I mentioned the presence of infection in these cases. It is very common to have infection. It is very common to have abscesses, and unfortunately one of the common mistakes made by the medical profession is that an abscess is diagnosed, not realizing that it is only secondary to the cancer.

There are those who say the so-called bronchial adenoma is a benign tumor which never becomes malignant. I cannot go into a lengthy discussion about what the so-called adenoma is, but we have had a good many cases in which it seems to us there is incontrovertible evidence that the so-called bronchial adenoma often becomes malignant and then gets out of control.

We obtained one autopsy specimen at the St. Louis County Hospital, from a man who died as a result of an injury received in a street accident, and it happened that he had a tumor well circumscribed in his bronchus.

Under slight magnification, it is possible to see that it is lined with mucous membrane; there is no ulceration; it has all of the characteristics of a so-called bronchial adenoma.

The typical microscopic appearance of the so-called bronchial adenoma shows that it is composed, for the most part, of a cell which is mostly nucleus, has very little cytoplasm; no mitotic figures are seen in it as a rule; it is arranged in different ways, yet at the autopsy, there were multiple metastases in the liver. We have several similar cases on record.

Figures were completed in 1947, representing malignant tumors that were operated on at least five years before 1942, showing some 57 total pneumonectomies performed previous to 1942. I cannot take time to go into what malignant mixed tumor means; it is really a malignant adenoma, a bronchial adenoma which has become malignant, in our opinion, but there is a 57 per cent cure for five years; of the squamous carcinoma, 14 per cent, and of the undifferentiated carcinoma 20 per cent five-year cures.

These statistics do not mean an awful lot because it is a small number of cases, but they do show it is possible to cure a good many of these cases.

The question often comes up, as with cancer in general: What chance has a patient who has lymph glands involved? The results indicate that of the undifferentiated group, none of the patients who had glands involved survived the five-year period. On the other hand, 8 per cent of the squamous carcinomas survived, and 40 per cent of the malignant mixed tumor group survived, all of whom had invaded lymph glands.

I MENTIONED earlier in my remarks that it is impossible to tell by x-ray diagnosis alone whether or not one is dealing with a bronchogenic carcinoma. An example that will show to some extent what I mean is that of a man who presented himself with a lesion which had been discovered accidentally in a routine checkup. What is it? In order to make the answer more simple, I will say that it is practically certain to be one of two things, either a bronchogenic carcinoma which has arisen in a small bronchus, or a tuberculoma.

Applying the ordinary diagnostic procedures to a case like this one will not get you very far; therefore this patient needs an exploratory operation, not two or three months from now, not after Christmas sometime, but right now if you are going to get anywhere with it. Even if it is a tuberculoma it ought to come out anyway, because tuberculomas often become active and result in a spread of tuberculosis.

This man had an exploratory operation and it proved to be a carcinoma. He is perfectly well. It has been a year or so now.

I will say also that unfortunately we have had patients with lesions like that who have been observed for two or three months. That means that somebody has sat around and watched the little fire develop into a big blaze which has destroyed the whole building, and that is what happens so often in these cases. Observation is not what is needed in these cases, but prompt action, prompt surgical action.

Scientific Exhibit

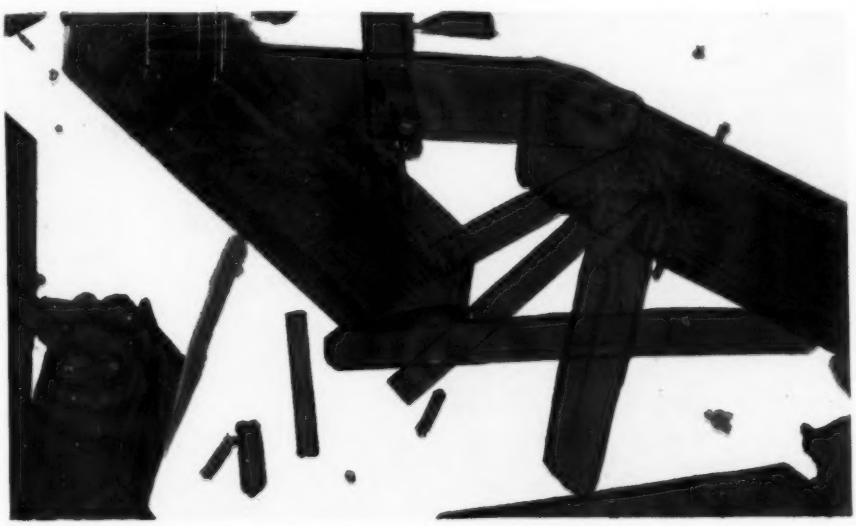
Crystalline Vitamin B_{12} in the Treatment of Megaloblastic Anemias

E. SCHMATOLLA, M.D., A. GIBSON, M. D. AND J. M. CARLISLE, M. D.

MEDICAL DIVISION, MERCK & CO., INC., RAHWAY, N. J.

THE classic studies of Minot and Murphy initiated a new era in the treatment of pernicious anemia. Today, slightly more than two decades later, the physician has at his command a pure anti-anemia factor. Weight for weight this is the most potent therapeutic substance known to medicine.

Crystalline Vitamin B_{12}—a pure anti-anemia factor—was first isolated in the Merck Research Laboratories, as described in *Science* 107:396-397 (April 16) 1948.



PURE CRYSTALLINE VITAMIN B12

Adapted from the Scientific Exhibit presented at the 1949 convention of the American Medical Association, Atlantic City, N. J.

HEMOPOIETIC AND OTHER ACTIVITY

- Crystalline Vitamin B_{12} is a highly effective substance capable of producing hemopoietic activity in patients having those types of anemia characterized by erythrocyte maturation arrest.
- As little as one microgram (0.000001 gm.) daily of this substance is sufficient to effect and maintain remission in pernicious anemia.
- Crystalline Vitamin B_{12} also is an essential "growth factor" for certain species of animals (e.g., chicks, pigs).

CLINICAL INDICATIONS

Crystalline Vitamin B_{12} is effective in microgram quantities in the treatment of:

Uncomplicated pernicious anemia

Pernicious anemia with nervous system complications (subacute combined degeneration of the spinal cord)

Tropical and nontropical sprue

Nutritional macrocytic anemia

Megaloblastic anemia of infancy (certain cases)

Patients with any of the above disorders who are sensitive to liver extract

LACK OF UNTOWARD REACTIONS

- Crystalline Vitamin B_{12} has been given with complete safety to those 3 to 5 per cent of patients who react, often violently, to liver extract.
- No allergic reactions have occurred.
- Saline solution of crystalline Vitamin B_{12} caused no induration and little or no discomfort at the site of injection.
- No toxic effects have followed the administration of crystalline Vitamin B_{12}.

PATHOGENESIS OF THE MEGALOBLASTIC ANEMIAS

DUE CHIEFLY TO DEFICIENCY OF THE ERYTHROCYTE MATURATION FACTOR

Deficiency May Be Caused By:

Lack of extrinsic factor in the diet (nutritional macrocytic anemia).

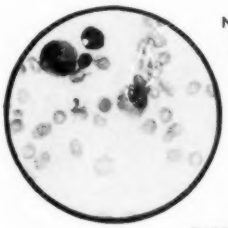
Failure of the gastric mucosa to form intrinsic factor (pernicious anemia, post-gastrectomy macrocytic anemia).

Defect in absorption of extrinsic factor as in intestinal disorders (sprue, steatorrhea).

Inability of the liver to store the erythrocyte maturation factor (hepatic disease)?

Deficiency Results In:

ABNORMAL RED BLOOD CELL MATURATION



NORMAL BONE MARROW

MEGALOBLASTIC BONE MARROW FROM UNTREATED PERNICIOUS ANEMIA PATIENT

primitive stem cell

proerythroblast

promegaloblast

erythroblast

megaloblast

normoblast

polychromatic megaloblast

(relatively few develop into mature red cells to be released into the peripheral blood - - "maturation arrest")

reticulocyte

abnormal red blood cells

erythrocyte

NORMAL MATURATION

ABNORMAL MATURATION

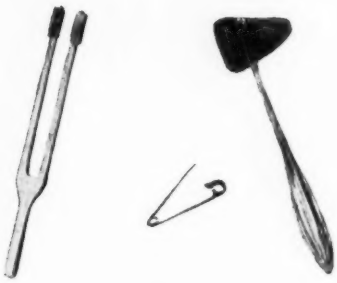
DIAGNOSIS OF PERNICIOUS ANEMIA

HISTORY

sore tongue	mental changes	tingling	palpitation
diarrhea	weakness	unsteady gait	tinnitus
anorexia	numbness	dyspnea	dizziness

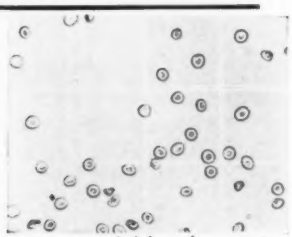
PHYSICAL SIGNS

beefy red tongue
pallor of skin and mucous membranes
lemon-yellow tinge of skin

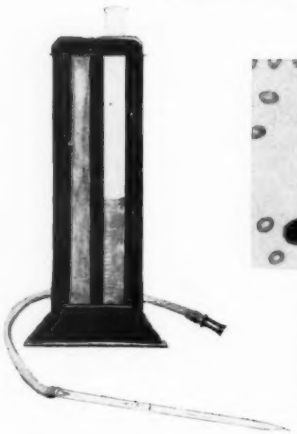


impaired vibration sense
impaired position sense
impaired pin-prick sensation
hyper-reflexia of tendon reflexes
Babinski, Hoffman, etc.

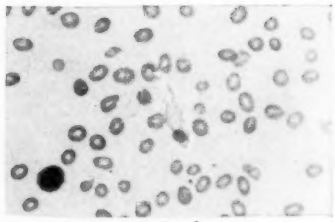
LABORATORY TESTS



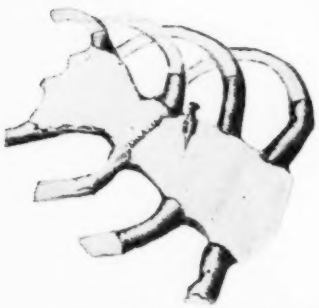
low red blood count



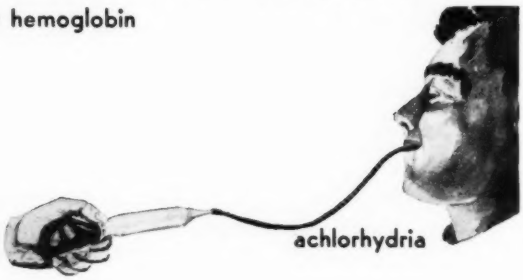
low hemoglobin



macrocytosis
anisocytosis
poikilocytosis
polychromatophilia
basophilic stippling
occ. nucleated red cells



megaloblastic hyperplasia
in marrow smear



achlorhydria

THE TREATMENT OF THE MEGALOBLASTIC ANEMIAS

First Used	*Medication*	*Average Daily Dose*
1926	Oral liver	200 grams
1928	Parenteral refined liver extract	(1 U.S.P. unit)
1929	Oral desiccated hog's stomach	25 grams
1945	Pteroylglutamic acid	.005 gram
1949	Crystalline Vitamin B_{12} (Cobione)*	.000001 gram

CLASSIFICATION OF THE MEGALOBLASTIC ANEMIAS

Anemias characterized by erythrocyte maturation arrest

- Pernicious anemia
- Nutritional macrocytic anemia
- Cirrhosis of the liver
- Fish tapeworm infection (Diphyllobothrium latum)
- Megaloblastic anemia of infancy
- Macrocytic anemia of pregnancy
- Macrocytic anemias associated with gastrointestinal disorders
  - Sprue (tropical and nontropical)
  - Idiopathic steatorrhea
  - Celiac disease
  - Chronic pancreatic disease
  - Regional ileitis
  - Gastrectomy
  - Carcinoma of the stomach
  - Gastroenterostomy

INDICATIONS AND DOSAGE FOR CRYSTALLINE VITAMIN B_{12}

(Saline solution of Cobione)

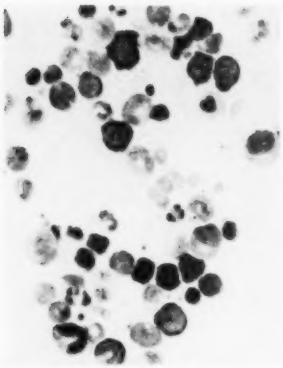
By subcutaneous or intramuscular injection

	Initial	*Maintenance*
Pernicious anemia (uncomplicated)	15 micrograms once or twice a week until remission occurs	15 micrograms every other week
Pernicious anemia with neurologic complications	15 to 30 micrograms once or twice a week until a maximum response has been obtained	15 micrograms every other week
Pernicious anemia in patients sensitive to liver preparations	15 micrograms once or twice a week until remission occurs	15 micrograms every other week
Sprue (tropical and nontropical)	15 to 30 micrograms once or twice weekly	15 micrograms every other week if needed to prevent relapse
Nutritional macrocytic anemia (certain cases)	A single injection of 15 micrograms	15 micrograms once a week may be required to prevent relapse
Megaloblastic anemia of infancy (certain cases)	A single injection of 15 to 30 micrograms	If response is not prompt, other therapeutic measures should be employed at once

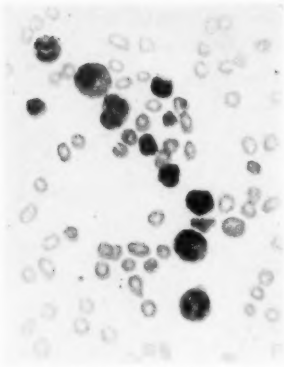
**Ampuls of Cobione, Merck & Company, Inc.*

RESPONSE TO VITAMIN B_{12} THERAPY

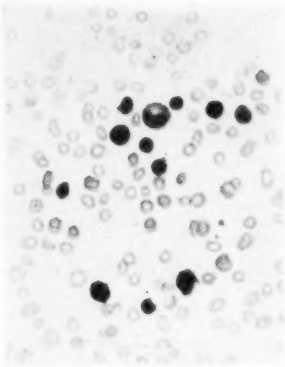
HEMOPOIETIC RESPONSE OF BONE MARROW FOLLOWING A SINGLE INTRAMUSCULAR INJECTION OF 25 MICROGRAMS OF VITAMIN B_{12} IN A PATIENT WITH **PERNICIOUS ANEMIA** IN RELAPSE



BEFORE TREATMENT

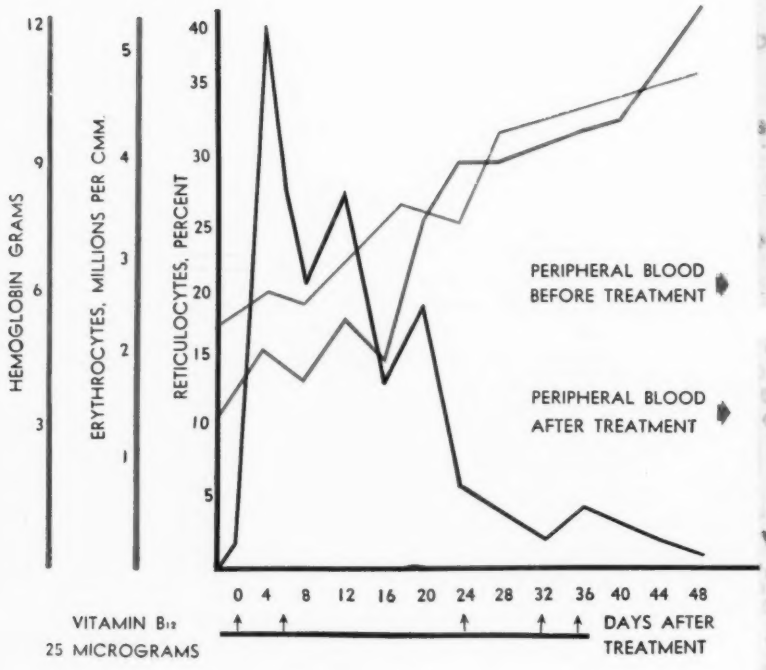


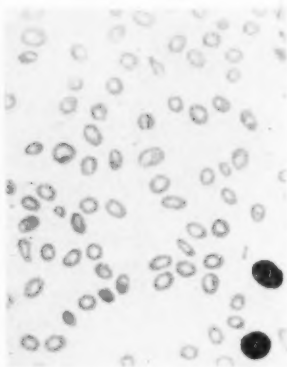
18 HOURS AFTER VITAMIN B_{12}

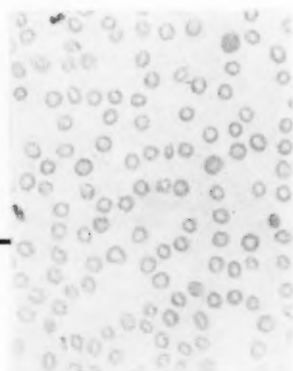


90 HOURS AFTER VITAMIN B_{12}

TYPICAL HEMATOLOGIC RESPONSE OF PATIENT WITH **PERNICIOUS ANEMIA** IN RELAPSE TO TREATMENT WITH VITAMIN B_{12}







NEUROLOGIC RESPONSE IN PERNICIOUS ANEMIA TO VITAMIN B_{12} THERAPY

(5 micrograms I.M. daily for 8 days, then 15 micrograms weekly)

Symptom or Sign	Before Therapy	After 3 wks. of Therapy	After 6 wks. of Therapy	After 9 wks. of Therapy
Numbness				
Hands	present	▲ ABSENT	▲ ABSENT	▲ ABSENT
Feet	present	present	▲ ABSENT	▲ ABSENT
Pinprick Sense				
Fingers	impaired	▲ NORMAL	▲ NORMAL	▲ NORMAL
Feet	impaired	▲ NORMAL	▲ NORMAL	▲ NORMAL
Toes	impaired	▲ IMPROVED	▲ IMPROVED	▲ NORMAL
Vibration Sense				
Patella	impaired	▲ NORMAL	▲ NORMAL	▲ NORMAL
Tibia	impaired	impaired	▲ NORMAL	▲ NORMAL
Malleolus	impaired	impaired	impaired	▲ NORMAL
Position Sense				
Toes	impaired	▲ IMPROVED	▲ IMPROVED	▲ IMPROVED
Plantar Reflexes	Babinski	▲ NORMAL	▲ NORMAL	▲ NORMAL
Tendon Reflexes	hyperactive	▲ NORMAL	▲ NORMAL	▲ NORMAL
Ataxia	present	▲ IMPROVED	▲ IMPROVED	▲ NORMAL
Romberg's Sign	present	present	present	▲ NORMAL

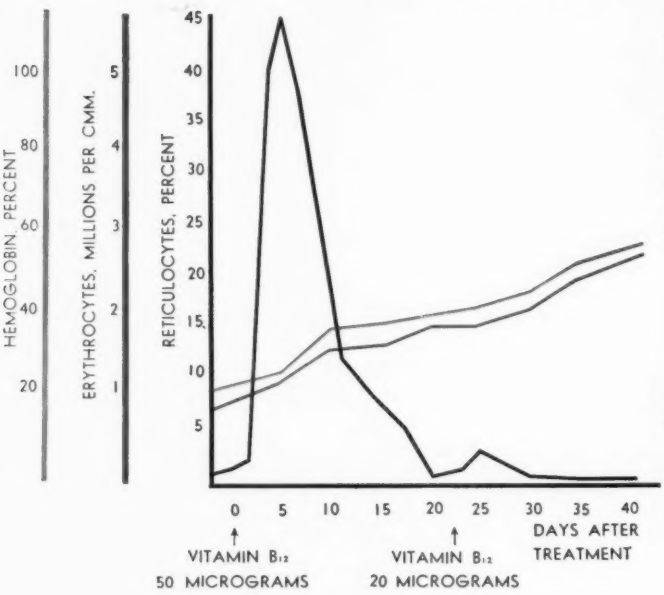
REGENERATION OF LINGUAL PAPILLAE FOLLOWING THERAPY WITH VITAMIN B_{12}

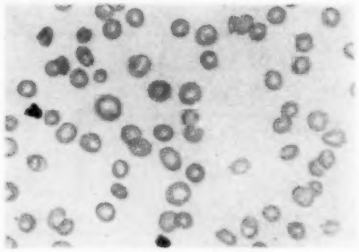
BEFORE TREATMENT

AFTER TREATMENT

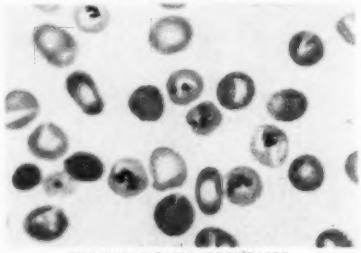
RESPONSE TO VITAMIN B_{12} THERAPY

TYPICAL HEMATOLOGIC RESPONSE OF PATIENT WITH **SPRUE** TO TREATMENT WITH VITAMIN B_{12}



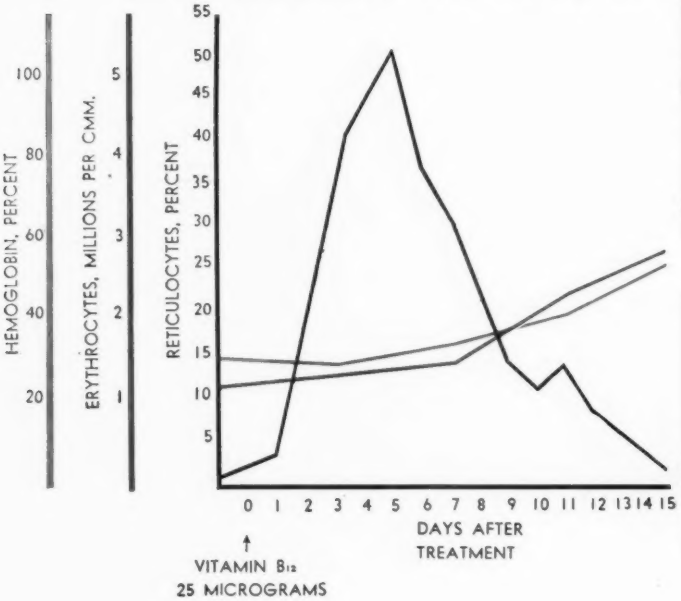


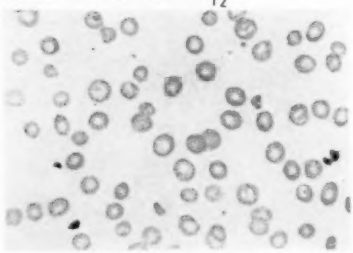
PERIPHERAL BLOOD BEFORE TREATMENT



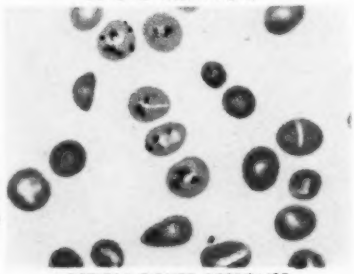
RETICULOCYTE RESPONSE DURING TREATMENT

TYPICAL HEMATOLOGIC RESPONSE OF PATIENT WITH **NUTRITIONAL MACROCYTIC ANEMIA** TO TREATMENT WITH VITAMIN B_{12}





PERIPHERAL BLOOD BEFORE TREATMENT



RETICULOCYTE RESPONSE DURING TREATMENT

DIAGNOSTIC STUDY

The Acute Abdomen

PHILIP THOREK*

COOK COUNTY GRADUATE SCHOOL OF MEDICINE, CHICAGO

THE SUBJECT of the acute abdomen will always present an interesting challenge to the general practitioner and surgeon alike. A study of charts from the surgical services at the Cook County Hospital, for a period of ten years, showed six outstanding diseases most frequently mistaken in the acute abdomen. These six conditions are: (1) acute appendicitis; (2) acute cholecystitis; (3) perforated peptic ulcer; (4) acute hemorrhagic pancreatitis; (5) renal colic and (6) coronary occlusion.

There is a seventh disease which deserves special consideration, namely, salpingitis. Frequently, acute or chronic salpingeal pathology is associated with a perihepatitis which produces pain in the right upper quadrant (pseudogallbladder pain). Because of this, gallbladder explorations and other surgical procedures have been done in cases of salpingitis, resulting in danger to the patient and embarrassment to the surgeon.

To make a diagnosis one must have a simple and workable plan in mind. Our plan consists of four headings, namely, history, present symptom complex, physical examination, and laboratory data. This routine has served us well and we utilize it daily.

ACUTE APPENDICITIS

The more one sees of acute appendicitis, the more one respects the condition. The statement "only an appendix" is indeed a dangerous one. This condition is most frequently found in individuals under the age of 40 and is somewhat more common in males. It will be recalled that gallbladder conditions appear most frequently after the age of 40.

The story the patient relates is usually quite stereotyped. To put it in his language: "Something I ate gave me a bellyache." This is his way of describing acute epigastric distress. When he gets this "bellyache" he often attempts to obtain relief with either a cathartic or an enema. Within the first twenty-four hours his "bellyache" becomes a soreness low on the right side. His acute epigastric distress has become localized to the right lower quadrant.

*From the Departments of Surgery of the University of Illinois, Cook County Graduate School of Medicine and Cook County Hospital.

The "two-question test" is both useful and time-saving. Question Number 1: "Where was your pain when it started?"; to this interrogation the patient points to his entire abdomen. Question Number 2: "Where does it hurt you now?"; he then points to the right lower quadrant, usually McBurney's point. This simple method of having the patient demonstrate diffuse pain which localizes to the right lower quadrant will diagnose the vast majority of cases of acute appendicitis.

Nausea and vomiting have been impressed upon us as being associated with appendicitis. This is the exception and not the rule. Anorexia, or loss of appetite, is more constant and more important than either nausea or vomiting. Anorexia, nausea, and vomiting are three degrees of one symptom; anorexia is the mildest form and is associated with mild distention of the appendix; nausea, the middle degree, is due to moderate distention; and vomiting, the maximum degree, is found in greatly distended appendices.

The most common symptom in acute appendicitis is anorexia, and if the patient states that his appetite is not altered we doubt the diagnosis of an acute appendix. Two complaints which are extremely rare in acute appendicitis are diarrhea and chills. These are probably found in less than 1 per cent of the cases. Constipation is the rule.

Fever is not an early finding in acute appendicitis; in fact, if present it is suggestive of peritoneal soiling. It is true that cases of acute appendicitis may have a fever of 102° or 103° F., but these are no longer cases of appendicitis; they are cases of far advanced peritonitis. Children prove the exception to this rule. If appendices could be operated upon when the temperature is below 99° F. the mortality would be very low.

Acute appendicitis does *not* cause right rectus rigidity. Although the reverse is taught in many schools and text books, this point should be clarified. It is impossible for an individual to contract his right rectus muscle without contracting the left; therefore, when pressure is made upon an inflamed area, both rectus muscles contract. When only one rectus muscle is rigid it suggests an underlying mass, such as a tumor or abscess. When both recti contract to pressure it should be considered "muscular defense" rather than right or left rectus rigidity. The importance of this bears emphasis when we realize that diagnosis, treatment, and prognosis may depend on the presence of right rectus rigidity or simple muscular defense.

The iliopsoas and obturator signs are not signs which diagnose acute appendicitis, but rather locate an acute appendix. Probably a misconception has arisen because these signs are usually discussed under the heading of acute appendicitis; they may be produced in other diseases.

The right iliopsoas sign is elicited by placing the patient on his left side and hyperextending the right leg. If positive, pain is produced over the iliopsoas fascia which will be manifested in the region of the right lower quadrant. In the presence of a history of acute appendicitis this would signify that the inflamed appendix is overlying the iliopsoas fascia and is retrocecal.

A positive obturator sign will locate an inflamed pelvic appendix. It is conducted in the following way: with the patient on his back the thigh is flexed upon the abdomen and the leg upon the thigh; the leg is then abducted. This causes internal rotation of the thigh and stretches the obturator internus muscle. If this produces pain it is diagnostic of a fasciitis involving the obturator fascia, which could be caused by an inflamed tube, appendix, ovarian cyst, or other condition.

If the patient elicits a history of acute appendicitis with a positive obturator sign, we conclude that the appendix is low-lying and in the pelvis. Rovsing's sign is also helpful. It is elicited by pressing over the left cecum; the colonic gas which has been pushed to the right will produce pain over the cecal region; this localization of pain is quite diagnostic of acute appendicitis.

Routine bidigital examinations are done; at times an acute appendix or appendiceal mass may be felt. Late and neglected appendices may produce a pelvic abscess which points rectally or vaginally, and this examination reveals the proper site and time for incision and drainage.

The laboratory data usually consists of a white blood count and urinalysis. More important than the white blood count or urinalysis is a differential blood count; this is easy to do and is more accurate. If the polymorphocyte count is high, we assume that an acute infectious process is present; a high polymorphocyte count in the presence of a low white count means a poor prognosis. The urinalysis is usually negative but may be misleading; a few red cells in the urine are not pathognomonic of renal pathology. Negative urines have been recorded where a renal stone completely blocks the ureter so that no blood or pus can pass into the bladder.

ACUTE CHOLECYSTITIS

The dictum that certain types of people are predisposed to certain types of diseases seems to be correct. The gallbladder type is described as fair, fat and forty, usually a female in the latter third or fourth decade and somewhat obese. There is always an exception to the rule; hence, the most fulminating hydrops of the gallbladder on our service was seen in a young, thin boy of 16 years.

The age of 40 is related to a previous history of pregnancy, and this is theoretically explained in the following way: the average female has her children in the second decade of life and while pregnant she develops a physiologic hypercholesterolemia. Some of this cholesterol deposits on the mucous membrane of the gallbladder, forms polypi which break off and become the nuclei for stones. It may take from ten to twenty years for gallstones to attain any appreciable size, so that by the time she reaches her fourth decade the stone is large enough to obstruct or irritate. Nulliparous women can also have gallstones or gallbladder disease, but this too, is the exception and not the rule.

The history of recurrent attacks of abdominal pain in a middle-aged female, so severe that the physician must administer a sedative, is an acute gallbladder until proved otherwise. Acute appendicitis does not require morphine; renal colics will be differentiated presently, and coronary occlusion is rare in the female. One of the most unusual lesions noted in the female is a perforated peptic ulcer.

The gallbladder patient also presents a previous history of "selective dyspepsia." By this we mean that there are certain specific foods that she cannot tolerate. There are four primary offenders: fried and fatty foods, raw apples, cucumbers, and cabbage. The patient does not use the term "dyspepsia," but describes this distress as the two "B's": namely, bloating and belching.

To summarize and describe the gallbladder patient one may use an alliteration and state that she is the patient with the seven "F's": she is the fair, fat, fertile, flatulent, flabby, female of forty.

The complaint is one of pain, and it is important to determine the type of pain present. A constant pain is due to edema, but colicky pain is caused by obstruction. This is one of the factors which indicate whether the case should be treated conservatively or surgically. It is unwise to treat an obstructed lesion conservatively since these are cases which result in early gangrene and perforation.

Morphine should not be used in gallbladder disease because it is a smooth muscle contractor, and since the gallbladder is a smooth muscle organ one should not administer a medicament which would stimulate its activity. By increasing muscle tonus, morphine may actually aggravate or provoke gallbladder pain and colic. One should not state, however, that the drug must never be used in gallbladder disease, since it still has its place, namely, to prevent shock.

These patients are treated first with nitrite therapy. One breaks an amyl nitrite bead and lets the patient inhale the vapors; 1/100th gr. of nitroglycerin is placed under the tongue, and 3 gr. of sodium amytal or any other barbiturate is given by mouth. If this gives no relief we administer a hypodermic which consists of 100 mg. of demerol and 1/100th gr. of nitroglycerin. Should these measures fail, antispasmodic therapy with such drugs as papaverine, aminophylline, etc., is tried. Morphine is used only after all other measures have failed.

Gallbladder pain is usually located under the right costal margin, but it may be referred to the stomach since these two organs originate from the same embryologic segment. The stomach responds to this stimulus in one of three types of gastric spasms: (1) pylorospasm, (2) midgastric spasm, and (3) cardiospasm. If a pylorospasm is produced the gallbladder condition might be confused with peptic ulcer; if midgastric spasm results, a stomach carcinoma may be erroneously diagnosed; and if associated with cardiospasm, the pain appears on the left (pseudocoronary pain) and coronary disease may incorrectly project itself into the diagnostic picture.

Referred pain should not be confused with radiation of pain. By radiation we mean that gallbladder pain, located under the right costal margin, may radiate along the path of the seventh intercostal nerve to the inferior angle of the right scapula, or the interscapular region. Gallbladder pain, therefore, cannot radiate to the right shoulder. Shoulder

pain is an entirely different mechanism which involves the phrenic nerve and is indicative of peritonitis. When a gallbladder patient has true shoulder pain a diagnosis of gangrenous or ruptured gallbladder with biliary peritonitis should be made.

Temperature, pulse, and respirations are included under the heading of physical examination. The patient with an acute gallbladder has an early high fever; hence, a temperature of 102° F. is not unusual within the first twelve to twenty-four hours of acute cholecystitis. The early fever is explained by the absence of a submucosa. Since this tough resisting layer is lacking, there is greater chance for early contamination and absorption in the peritoneal cavity. The patient has a pulse which is increased according to the temperature; therefore, for every one degree rise in fever there will be approximately an increase of 10 beats in pulse rate. Respirations are slightly increased because breathing is painful. This is due to the fact that the inflamed gallbladder rubs against the sensitive parietal peritoneum; consequently, acute gallbladder disease may be confused with pneumonia or pleurisy.

Although pain, a symptom, may be referred anywhere along its nervous path, tenderness, a physical finding, remains at the site of pathology. This is an excellent diagnostic rule having few if any exceptions. The tenderness of gallbladder disease will be located in the region of the right costal margin. If it is most marked on a level with the umbilicus, it may be difficult to determine whether the condition is an inflamed, lowlying gallbladder or an acute highlying retrocecal appendix. Two factors aid in differentiating these two conditions: First, we recall that the normal abdomen reveals a tympanitic note to percussion in all four quadrants. If the tenderness opposite the umbilicus is due to an inflamed gallbladder, we assume that the organ is unusually large or that a ptotic liver with an inflamed gallbladder at its free border is present. This would cause an obliteration of the normal tympany in the right upper quadrant and in its place the percussion note would be one of dullness or flatness. If the patient presents tenderness on the level with the umbilicus and retains normal tympany in the right upper quadrant, this would point to a highlying retrocecal appendix.

Another method of differentiating the gallbladder and appendix is by means of Ligat's test. This test locates areas of hyperesthesia over an inflamed organ. If the tenderness is due to gallbladder disease an area of hyperesthesia (elicited by picking up the skin and letting it drop) is present from the umbilicus upward to the right costal margin. If the tenderness is due to an acute appendix, the area of hyperesthesia will be found from the umbilicus down to Poupart's ligament.

A rectal examination is done routinely with every physical examination. More important than the rectal or vaginal examination is a so-called bidigital, which is conducted by placing the index finger in the vagina and the middle finger in the rectum with the perineum in between. This will immediately orient the examiner and adnexal pathology will be revealed.

A flat x-ray film should be taken in every acute abdominal condition. One may determine whether a calcified gallbladder or visible stones are present. It also gives an indication as to whether or not the liver is enlarged or ptotic. Routine laboratory tests are done.

PERFORATED PEPTIC ULCER

This condition is rare in females. Usually a previous history of peptic ulcer or hemorrhage can be obtained, but the onset may be with perforation.

The patient states that he was seized with a sudden pain, usually after eating; this was so severe that it doubled him up. The classical picture of perforated peptic ulcer with board-like rigidity and a shock-like syndrome is too well known to bear repetition. Two signs which should be sought for in every case, however, are: (1) the findings with auscultation, and (2) the presence of a pneumoperitoneum. Auscultation reveals an absolutely silent abdomen when an ulcer perforates, leaks and soils the peritoneal cavity. This is not new, since the late J. B. Murphy had stressed the importance of this finding many decades ago. When intestinal sounds are present, the diagnosis of perforated peptic ulcer is remote. There are exceptions, and one of these will be discussed presently under the subject of forme fruste ulcer.

The next sign which helps clinch the diagnosis is the demonstration of a spontaneous pneumoperitoneum. Normally a magenblase or stomach air bubble is present. When an ulcer perforates, this air bubble escapes into the general peritoneal cavity, and can be demonstrated either by percussion or with the fluoroscope; the latter is by far the more accurate. The patient is placed on his left side so that the free air bubble may gravitate upward between the liver and the right hemidiaphragm. By so doing, the liver is displaced downward and is separated from the diaphragm. Normally the liver hugs the diaphragm and no air space is visible between them. If this air is of an appreciable amount, normal liver dullness is obliterated and in its place a tympanitic note is produced by percussion. The sign is easy to demonstrate, quite pathognomonic of perforated peptic ulcer, and present in about 70 per cent of all cases.

The forme fruste ulcer deserves special mention. The term refers to a pinpoint perforation in the stomach or the duodenum which is immediately sealed over by muscular contraction or by the overlying liver. Therefore, the spillage is minimal and the amount of peritoneal soiling is small. Such patients may experience a sudden sharp pain in the epigastrium, but the typical physical findings are lacking. This patient may be able to straighten up and walk about. Abdominal sounds are usually present and the air bubble may remain intragastric, having had no chance to leave the small perforation. These patients, therefore, present a misleading picture and have been misdiagnosed. However, with the ingestion of their next meal they usually re-perforate and then present the typical findings.

The temperature, pulse, and respirations will depend upon whether or not shock is present. Most perforated peptic ulcers present a shock-like picture which varies in intensity. The shock associated with perforated ulcers responds rapidly to therapy. Within a few hours, the classical picture of peritonitis develops with the associated increase in temperature, pulse, and respiratory rate.

The contents from a perforated ulcer may pass downward along the so-called "paracolic gutter of Moynihan," pool around the appendix and produce exquisite tender-

ness at McBurney's point. The diagnostician must then be on his guard, since such a history would suggest an epigastric distress with localization to the right lower quadrant which could be confused with an acute appendix.

Upon exploratory operation, free fluid will be found in the peritoneal cavity with all signs of peritonitis, and a red and injected appendix seen and removed. These patients usually die if the leaking ulcer is overlooked. This catastrophe can be avoided if, before closing the abdomen, the appendix is opened and the mucous membrane examined. Since acute appendicitis starts in the lumen of the appendix and travels outward, a normal appearing mucous membrane suggests looking elsewhere for the cause of the peritonitis.

Laboratory data includes the flat x-ray film which has been discussed under the subject of spontaneous pneumoperitoneum. Routine blood count and urinalysis are done. Some of these patients might have bled, and although perforated ulcers are known not to produce massive hemorrhage, signs of a secondary anemia may be present.

ACUTE HEMORRHAGIC PANCREATITIS

It is important to recall that this disease may appear in one of two forms: either acute edematous pancreatitis or hemorrhagic pancreatitis. The former presents a mild clinical picture, but the latter which is associated with fat necrosis and occasionally a hemorrhagic peritonitis produces a fulminating one. The acute edematous form usually improves rapidly without therapy within forty-eight hours, but hemorrhagic pancreatitis gets progressively worse and often requires surgical intervention. It is the hemorrhagic type, therefore, which is important to identify and treat promptly.

Although the etiology of pancreatitis is unknown, there seems to be a mechanical factor which is associated with spasm, stones, swelling and stasis. The patient who develops acute pancreatitis is usually of the same type that develops gallbladder disease. Therefore, the condition is more common in females, rarely occurring before the age of 40, and is seen in stout people. The ratio of Negroes to whites is 1 to 50.

The attack usually follows the ingestion of a heavy meal. The pain is dramatic, sudden and excruciating; it is felt in the epigastrium, and radiates into one or both loins. In this way pancreatic pain radiation resembles an inverted fan. When the patient sits up or lies on his abdomen, the pain is relieved, and is aggravated when he is on his back. Hence, in most pancreatic conditions, whether they are tumors or inflammations, the patient is usually found lying on his abdomen or in a sitting position. Reflex vomiting or retching almost always occurs; emesis which is truly reflex in nature is never feculent.

Physical examination reveals a patient who is usually in shock with cold and clammy extremities, subnormal temperature, and a rapid, thready pulse. Local epigastric tenderness is almost always present and is associated with a type of muscular defense which is localized to the same area. The rigidity is not truly board-like in nature, and the tenderness is most marked midway between the umbilicus and the xiphoid. An occasional finding is ecchymosis in one or both loins, or at times around the umbilicus. This is due to extravasated blood which finds its way around the retroperitoneal space and presents itself as greenish yellow or purplish discolorations. This finding, however, takes two or three days to appear. Mild jaundice is present in about half of the cases; this is explained by the fact that the common duct is pressed upon by a swollen head of the pancreas. Abdominal auscultation usually reveals a quiet but not silent abdomen.

Laboratory findings may be helpful in the diagnosis. An increase of serum amylase is specific in the acute phase, although a normal reading does not rule out acute pancreatitis. Polowe has emphasized the importance of determining the blood amylase activity in terms of cuprous oxide precipitation. He has shown that moderate to marked blood amylase activity is almost always associated with diseases of the pancreas, and normal or decreased blood amylase almost always excludes pancreatitis. Hypocalcemia is usually present and the level found is usually below nine. A flat x-ray film of the abdomen may reveal a separation of the upper and lower limbs of the duodenum brought about by an edema of the head of the pancreas. This latter finding is unusual.

RENAL COLIC

Stones are not the only substance which produce renal colic, since the same syndrome may be produced by a small blood clot, inspissated pus, uratic debris, or a kinking of the ureteropelvic junction in a ptotic kidney.

The condition is more common in males, and the patient may reveal a history of previous attacks, a hereditary influence, a story of gout, or parathyroid pathology.

The patient complains of a sudden pain which starts in the lumbar region and radiates to the testicle, vulva, or the inner aspect of the thigh. With this pain he becomes extremely restless and thrashes about. A patient who is experiencing a colic is restless and moves about, but one who has a peritonitis lies perfectly quiet and resents being moved. Vomiting is a common symptom, as is frequency of urination. During micturition the pain may be altered.

Physical examination rarely reveals any elevation in temperature, but extremely characteristic of the condition is a bradycardia. It has often been stated that when a patient with an acute abdomen has "a clean tongue and a slow pulse" he has a renal colic until proved otherwise. Tenderness is most marked in the region of the twelfth rib of the involved side, and to elicit this finding it is unnecessary and cruel to utilize any type of "punch" test. The tenderness is so exquisite that mild percussion will demonstrate it. We prefer to use the term "Murphy tap" to "Murphy punch." A zone of hyperesthesia is usually found posteriorly at the level of and slightly below the twelfth rib. If this area is anesthetized with novocain, the hyperesthesia and pain disappear.

A flat x-ray plate may reveal the presence of a stone, but this is not reliable since nonopaque substances may also produce kidney colic. An intravenous pyelogram can be made without disturbing the patient, and if necessary, the films can be taken at the bedside with a stationary grid.

The significant finding for diagnosis of a stone in the ureter is the anuria which may be present on the affected side; the opposite side shows normal excretion. The kidney on the affected side usually appears increased in density since the dye in these tubules is more concentrated. This finding is sufficient for diagnosis of nonopaque stones in the

ureter. A catheterized specimen of urine usually reveals pus, blood, and albumin. The presence or absence of pus and blood in the urine is not pathognomonic since a stone may completely block the ureter and result in a normal urine. On the other hand, an inflamed appendix may be attached to the ureter, kidney, or bladder, resulting in a secondary ureteritis, nephritis, or cystitis with an associated hematuria. In such instances the laboratory report may actually be misleading.

CORONARY OCCLUSION

ALTHOUGH this belongs to the realm of the internist, the general practitioner as well as the surgeon must be on his guard to avoid the fatal error of confusing an acute coronary disease with an acute abdominal condition.

Men are most susceptible to this condition, and it is usually found in those past the age of 40. A previous history of dyspnea or pain in the chest during exertion or excitement may be elicited. The attack is sudden, with severe pain in the chest which radiates out the left arm towards the abdomen or both shoulders. There is a sense of impending death with severe fright which usually supersedes the complaint of pain. The radiation may also be toward the epigastrium, so that the examiner's attention is directed to the abdomen rather than the chest. A usual complaint during such an attack is one of "indigestion."

Although the pain of acute coronary disease may occur in the abdomen, it does not become localized; hence, no area of local abdominal tenderness is ever found. Marked abdominal distention may be present in coronary pathology, but muscle defense or rectus rigidity is lacking. In abdominal catastrophes the patient lies perfectly quiet, but the coronary patient is restless and tosses about. The acute cardiac patient presents veins in the neck which are distended and full, in contrast to the patient with the surgical abdomen who may appear pale and bloodless. Signs of impaired circulation are usually present, such as dyspnea, orthopnea, and cyanosis. Auscultation will usually reveal râles in both bases due to pulmonary congestion. Cardiac enlargement, feeble heart sounds, and occasionally a pericardial friction rub may be found. During auscultation of the abdomen, normal intestinal sounds will be heard which are absent or diminished in cases of peritonitis.

Positive electrocardiographic findings are pathognomonic, but one is not always fortunate enough to have an electrocardiogram handy. A leukocytosis may be present some hours after the disease takes place, and the urine is usually negative unless there is associated renal pathology.

We realize that many other conditions at times require differentiation in the acute abdomen, among them strangulated hernia, regional ileitis, mesenteric lymphadenitis, mesenteric thrombosis, ruptured ectopic pregnancy, ruptured graafian follicle, ileocecal tuberculosis, vasitis, torsion of the omentum, volvulus, intussusception, etc. However, when one misses one of these unusual conditions he does not feel quite as responsible or guilty as he would having missed one of the forementioned "Big Six."

Great Moments in the History of Medicine.
MORTON DISCOVERS ANESTHESIA—1858.
(From: "The Medical Pickwick")

General Practice *Review*

To provide the general practitioner, as well as the specialist, with concise, readily available information on the latest, proved methods of treatment of conditions commonly encountered in an average practice, POSTGRADUATE MEDICINE *offers this department to its readers. It is not, of course, intended to present these discussions as the only acceptable therapeutic procedures to be used, but rather to offer simple regimens and recommendations based on the extensive experience of the physicians who prepared these summaries.*

Treatment of Heart Block

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HEART block is said to exist when the PR interval exceeds 0.20 seconds. The block may be partial with simple prolongation of the PR interval. It may occur with progressive prolongation of the PR interval and the blocking of an occasional impulse so that a P wave is not followed by a QRS complex. This is termed the Wenckebach phenomenon and results in "dropped beats." There may be 2 to 1, 3 to 1, or rarely 4 to 1 A-V block. There may be complete block, in which instance the auricles and ventricles beat independently. In infancy complete block should be suspected with a ventricular rate of 70-90. In adults complete block should be suspected with a rate of 30-40.

First degree heart block causes no symptoms and requires no treatment. Partial block in which the auricles have a different rate from the ventricles may be associated with a sense of discomfort and palpitation. First degree block may be suspected in the presence of rheumatic fever when a previously normal or accentuated first heart sound becomes muffled or decreased.

The A-V block associated with rheumatic fever is related in some manner to increased vagal tone, and the conduction time may become normal following the administration of atropine. It has been suggested that this type may be related to rheumatic lesions in the great veins and auricles with reflex increase in vagal tone. It is generally tran-

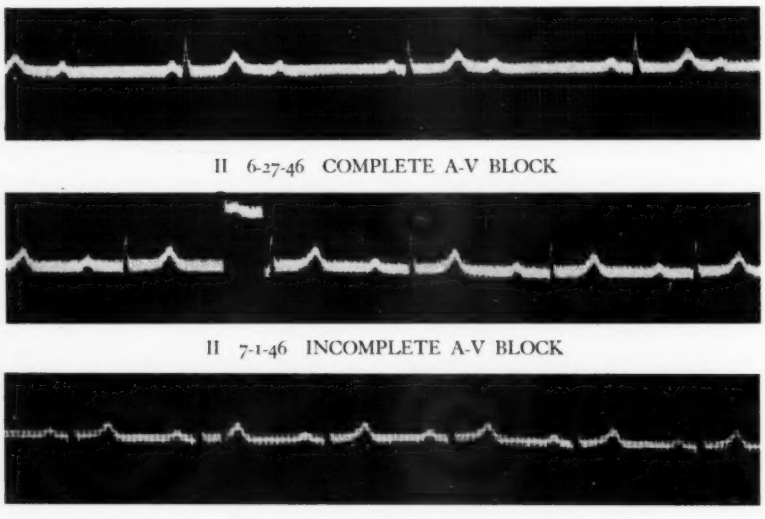

FIGURE 1. Complete heart block associated with coronary disease, demonstrating the transient nature of the conduction disturbance.

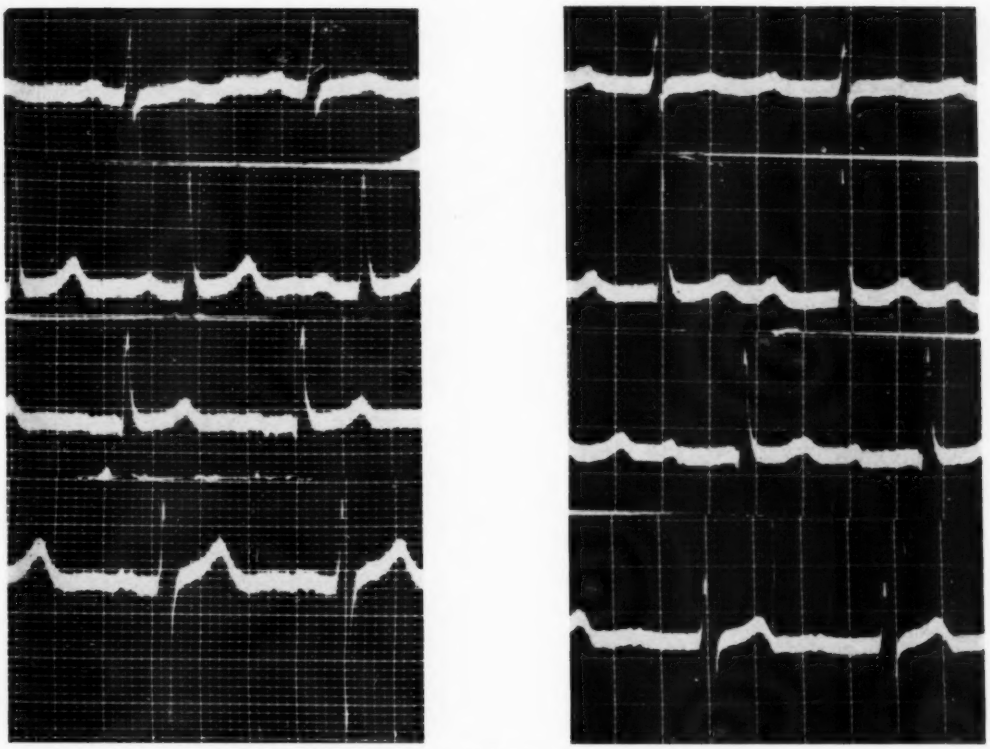

FIGURE 2. First degree heart block demonstrating decrease of PR interval from 0.33 to 0.18 following administration of atropine.

sient and disappears as rheumatic activity subsides. One rarely encounters complete heart block due to rheumatic fever. On the contrary, complete heart block is much more common in the presence of diphtheritic myocarditis.

Complete heart block may be diagnosed clinically by a slow rate with changing intensity of the first heart sound. In the transition from partial to complete block, ventricular standstill may occur until a new pacemaker in the ventricles takes over. It may also occur with persistent complete heart block. If this standstill is of sufficient duration cerebral ischemia occurs and syncope may result. Convulsive seizures may be seen during the attack and if these are prolonged death may ensue.

Stokes-Adams attacks due to complete heart block are usually preceded by at least minor degrees of A-V conduction disturbances, although in a rare individual the conduction time may be normal between attacks. Occasionally the PR interval

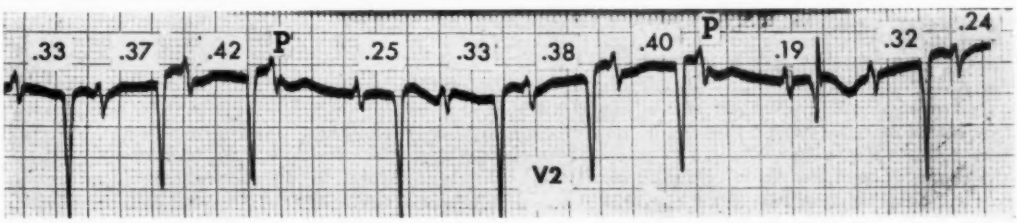

FIGURE 3. Incomplete A-V block with dropped beats (Wenckebach phenomenon).

may be normal but bundle branch block may exist and this may predispose to Stokes-Adams attacks. Stokes-Adams attacks are rare in the presence of congenital complete heart block; they are more often associated with coronary artery disease.

Stokes-Adams attacks may be due to one of four mechanisms: (1) ventricular standstill; (2) ventricular tachycardia; (3) ventricular fibrillation; (4) combination of the above. In any given patient, the mechanism may vary; in one instance it may be due to standstill, in another due to ventricular tachycardia and on still another occasion to ventricular fibrillation, or to a combination of these.

The treatment will depend on the nature of the attack and this can only be determined by an electrocardiogram taken during an attack. In about half of the cases they are due to ventricular standstill. In the case of standstill, treatment is directed: (1) to increase ventricular irritability; (2) decrease vagal tone and thus facilitate A-V conduction; (3) to improve coronary flow.

Drugs used to increase ventricular irritability are: epinephrine sulfate, barium chloride, digitalis, and intravenous aminophylline. In the second category, atropine is useful. In the group of patients with coronary arteriosclerosis, papaverine, intravenous aminophylline, and oxygen are useful. Ventricular standstill is treated by the administration of ¼ to ½ cc. of adrenalin subcutaneously. Its effect lasts for one to two hours and if attacks are frequent, it should be given at intervals of two to six hours. The administration of slower acting epinephrine in oil, ½ to 1 cc. every six hours may be useful.

If any attack is prolonged, intracardiac epinephrine may be necessary. This is given in the fourth left interspace adjacent to the sternum, ¼ to ½ cc. being injected into the muscle or into the ventricular cavity using a 21-gauge needle 2½ inches long. Epinephrine may at times induce ventricular tachycardia, ventricular fibrillation, angina pectoris, or even myocardial infarction; however, the beneficial effects outweigh these small risks.

As prophylactic measures, ephedrine sulfate, 20 to 30 mg., combined with phenobarbital three times a day or barium chloride, 30 to 40 mg. three or four times a day may be useful to increase ventricular irritability. Atropine in a dose of 0.8 mg. 3 to 4 times daily may be helpful by decreasing vagal tone. Papaverine 100 mg. orally every four hours or 60 mg. intramuscularly may be used in presence of coronary disease. Digitalis can be used in the presence of complete heart block to increase ventricular irritability. The presence of first degree heart block does not contraindicate its use in the treatment of congestive heart failure.

Ventricular tachycardia causing Stokes-Adams attacks may be treated by quinidine lactate, 0.65 gm. in 250 cc. of 5 per cent glucose in distilled water given at a rate of 60 drops per minute intravenously, or if the need is less urgent 0.6 to 0.9 gm. orally every two hours until an effect is obtained or toxic symptoms occur. There is no effective treatment for ventricular fibrillation; however, 2 cc. of 1 per cent novocain administered into the ventricles may be tried.

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Treatment of Impetigo

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The treatment of impetigo contagiosa has been simplified and rendered more effective by the introduction in recent years of a number of new agents. The author and his associates,[1-5] in the course of studying these agents in the treatment of pyogenic infections of the skin, have treated some 300 cases of impetigo.

Cultures were performed on all cases to determine the organism or organisms present and to test the sensitivity of these organisms to the various agents used. Repeat cultures were done for evidence of development of resistance on the part of the organisms to the agent used.

Various ointment bases were tested in the laboratory for stability and release of the agent used. Effectiveness of each agent was determined by find-

ing the median time of cure in a series of cases. Sensitization of the patient to an agent was determined by listing those who developed a reaction while using the agent and by subsequent patch tests after all lesions had healed. The following recommendations on treatment of impetigo are based on these studies.

EFFECTIVE AGENTS

The sulfonamides, penicillin, bacitracin, furacin, and dihydrostreptomycin incorporated in suitable ointment bases have all proved effective agents in the treatment of impetigo. In our studies the time required to clear the infection averaged approximately six days, regardless of which medicament was used. The entire group is more effective than the older accepted remedies, ammoniated mercury and gentian violet. The advantages and disadvantages of each will be discussed.

The sulfonamide compounds when applied in concentrations of 5 per cent in ointment bases sensitize the patient in approximately 5 per cent of the cases. When so sensitized, the patient may react again if the drug is given internally. These reactions may be severe and last for some time. For these reasons use of the sulfonamides is not advised.

Penicillin ointment, in the strength of 500 to 1,000 units per gram, is used extensively. It produces sensitization of the patient in 5 to 10 per cent of the cases. For this reason, opinion is divided as to the advisability of using such an extremely valuable drug in relatively simple infections. Initial sensitization usually occurs about the eighth day. The reactions are usually not too severe or persistent after the penicillin is stopped. In general, the use of penicillin ointment for five to six days in impetigo seems justified, but preference should be given bacitracin or dihydrostreptomycin ointment.

Bacitracin, in the concentration of 500 units per gram, has proved a particularly valuable agent. It is effective, it sensitizes in less than 1 per cent of the cases, and to date, because of difficulties in purification with resultant risk of toxicity, has had limited use internally. The one drawback has been a question of limited stability when stored as a prepared ointment at room temperatures over a fair period of time. Bacitracin, until incorporated in an ointment base, is stable. Fresh preparation of the ointment by the pharmacist will overcome this possible drawback. Steps are now being taken by the manufacturers to simplify this procedure. All in all, bacitracin ointment is worthy of trial in all cases of impetigo.

Furacin in usage has caused considerable sensitization, even more than initial study revealed, and its use in treatment of impetigo has largely been given up.

Dihydrostreptomycin, 5 mg. per gram, in a suitable ointment base has proved an effective agent. Drug fastness developed in less than two weeks in approximately half of the organisms isolated in our studies. This drug fastness was sufficient to stop the beneficial effects of the agent. In impetigo the time of clearance is usually so short that this factor need not be considered. Dihydrostreptomycin sensitized in approximately 4 per cent of the cases. It is a valuable remedy in impetigo.

SUITABLE BASES

Our studies in the laboratory showed that oil-in-water and greaseless bases release the various agents much more effectively than bases such as petrolatum. This is in agreement with the findings of others.[6-8] The following are examples of suitable bases, the first being a greaseless and the second an oil-in-water ointment.

Carbowax 1540	36.00 gm.
Carbowax 4000	18.00 gm.
Polyethylene glycol 200	46.00 gm.
Cetyl alcohol	8.00 gm.
White petrolatum	20.00 gm.
Liquid petrolatum light	18.00 gm.
Propyl parahydroxybenzoate*	0.02 gm.
Distilled water	q.s. 100.00 gm.

A base which is hardly noticeable on the face has the following formula.

Cetyl alcohol	21.00 gm.
Glycerin	21.00 gm.
Sodium lauryl sulfate	2.00 gm.
Propyl parahydroxybenzoate*	0.02 gm.
Distilled water	q.s. 100.00 gm.

*Prevents growth of molds.

The necessity for the removal of crusts in impetigo is obvious. For this purpose wet compresses of physiologic salt solution are used. Hot compresses remove crusts painlessly and, in children, this usually means the difference between removal of crusts and half-hearted attempts with failure. Irritation of the skin is often produced by vigorous removal of crusts by soap and water. Boric acid is avoided because of possible ill effects, as reported by Watson.[9] Hydrogen peroxide and potassium permanganate hasten oxidation of agents such as penicillin and should not be used.

Injections of penicillin are effective and are indicated in widespread infections, particularly in children where adequate local treatment is sometimes difficult.

Management of a case of impetigo requires at-

tention to the question of reinfection, and spread to others. The disease is spread by contact with articles handled by the patient. Wash clothes, towels, pillow slips, razors, powder puffs, and toys must be sterilized.

With the proper use of the agents discussed, most cases of impetigo will clear in one week.

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Treatment of Alcoholism

RICHARD JAENIKE

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Alcoholism is a symptom of a social and psychologic illness. Because of the growing magnitude of this problem the prevention as well as the treatment of alcoholism should have the active support of all medical men.

Prevention methods should be instituted by (1) attacking the problem in its early stages and (2) by education, church activities, and community programs.

TREATMENT

There is no one method nor is there a specific treatment for alcoholism. The therapist must be understanding, tolerant, and flexible, and each patient must be regarded as a different problem. The personality of the alcoholic must be examined, studied, and treated. All of the factors must be examined, especially the physical condition, intellect, quality of emotional maturity, the desire to develop control, and all of the social and environmental situations.

Medical treatment is essentially supportive and protective. The first point in treatment is the protection of the patient against self harm or suicide, likely to result from the confusion and disorientation. Special nursing care is often needed to give the individual some sense of constant protection which may offset the fears. Relaxation and elimination may be promoted by hydrotherapy. There should be no mechanical restraints, since this will only increase the patient's fears and alarm. In case of overactivity, chemical sedation may be necessary. This is to be avoided wherever possible for the brain already is in a toxic state and the delirium is increased by drugs.

Paraldehyde in doses of 15 cc. by mouth and up to 20 cc. by rectum has proved effective and will not increase the toxic reaction.

The immediate need is for the elimination of alcohol. The delirium may appear worse after suddenly stopping alcohol administration but on the whole the process is shorter. The best procedure is to stop all alcohol immediately.

The patient with alcoholic delirium needs hospital care. If the patient resists hospitalization, commitment should be promptly arranged.

Among the first steps are gastric lavage and bowel elimination, as well as a bland diet including vitamins and fluids. A liquid diet high in calories and in vitamin B is given by tube if necessary. Intravenous hypertonic glucose solutions may be used. Insulin given in subconvulsive dosage combined with carbohydrate several times daily is also a valuable aid.

In chronic alcoholic hallucinations, the patient needs immediate hospital commitment.

Indications of good prognosis include occupational success, intelligence, emotional stability, and interest in sobriety clubs such as the Alcoholics Anonymous group.

The Medical Bookman

PSYCHIATRY FOR THE PEDIATRICIAN*

MANY of the textbooks on psychiatry are of no practical value to the practicing physician. They suffer either from too much psychiatric verbiage which confuses and frustrates the reader, or they overemphasize a favorite technic which they try to sell to the reader, but which cannot be used in the setup of the general practitioner's office. This book, however, is a "must" for all general practitioners and pediatricians. It cannot be read at one sitting, but should be used as a practical guide with which to discover situations which interfere with normal personality development of the child.

It will help in the detection of early evidences of maladjustment and help to overcome the insecurity of the practitioner in the prevention and treatment of the most common and less serious behavior disturbances.

It is impossible to do justice to this comprehensive and excellent book in such a short review, but the reviewer would like to call particular attention to chapters 8 and 9: On Investigations and Treatment of Behavior Problems. In chapter 8 the author urges that the diagnosis of behavior disorders requires an altogether different approach from that of physical and organic disease. Diagnosis in terms of clinical entities of applying nosological classifications is inadequate in pediatric psychiatry, because they give no information as to what is wrong with the total child or why.

Making a diagnosis of enuresis or temper tantrums or stealing is as inept and inaccurate as making a diagnosis of headache, or vomiting, or abdominal pain. The secret of diagnosis is to understand what it is that is disturbing the child and what the child is trying to accomplish by his behavior.

In this chapter the author deserves a special thanks for avoiding the use of "polysyllabic monstrosities," which abound in many similar books. As he says, once a case is really understood, the diagnosis can be adequately expressed in ordinary medical language. He offers some very sound and sensible advice to the physician on his relation to the parents and child. In dealing with physical and organic diseases, the average physician is accustomed to "lay down the law," to instruct in dogmatic terms as if he were infallible. Such an attitude must be avoided in dealing with behavior problems. There are times when ill-timed and indiscriminately dispensed advice often proves to be a waste of speech. If pressure is exerted on the patient to accept treatment when parent and/or the child are not ready or willing, either or both may respond with resistance and resentment which will spell failure. The physician is then faced with "The dilemma of the expert."

Chapter 9, The Treatment of Behavior Problems is alone worth the price of "admission." In clear, precise language, the author not only discusses the basic principles of treatment but reveals the many practical pitfalls to be avoided. First of all treatment must be primarily concerned with the general adjustment of the child rather than with merely eliminating outstanding symptoms. No physician would think of treating headaches per se, without finding the cause. By the same token it is no more logical to treat nailbiting with bad tasting medicines or poor schoolwork with spankings.

Since the child is an integral part of an environmental situation, it is the total situation rather than the child alone that needs treatment. Treatment like diagnosis begins on first contact with the child. Before the physician has made his final diagnosis, which may take weeks or months, the emotional relationship which the physician creates between him and the parent and child may influence the success or failure in treatment.

The kind of treatment, that is the chief point of attack, depends upon the etiologic factors. If the child's maladjustment is due essentially to a faulty

*By Hale F. Shirley, M.D., Associate Professor of Pediatrics and Psychiatry, Stanford University School of Medicine, San Francisco. 442 pages. 1948, The Commonwealth Fund, New York. $4.50.

maternal attitude, an attempt must be made to change the mother's behavior in relation to her child. If a child's behavior is the result of "bad" home environment, the only possible hope of changing the child is "placement."

Even though the parent brings the child to the doctor for a single complaint, usually there is a multiplicity of causative factors. Although one factor may seem to predominate the picture, all known factors must be treated at the same time. It is sometimes difficult to know where to start when dealing with a chain of events which has produced a "vicious circle"—for instance the case of a child who will not eat. First the mother becomes anxious. Her anxiety causes her to do drastic things which in turn make the child angry. Anger interferes with the child's appetite still more. This in turn results in greater maternal anxiety. The physician must decide which spoke in the wheel is most vulnerable to attack.

In the role of a liaison between the reader and the author, the reviewer feels it is his duty to urge everyone who is in any way responsible for the mental health of the child to read and reread this book.

M. S.

New Books Received

► THE TEMPORAL BONE AND THE EAR - - -

By Theodore H. Bast, A.B., Ph.D., Professor of Anatomy, University of Wisconsin, Madison; and Barry J. Anson, M.A., Ph.D , Professor of Anatomy, Northwestern University Medical School, Chicago. First Edition. 478 pages, illustrated. Springfield, Illinois, Charles C Thomas, 1949. Price $12.00.

There have been many articles dealing with both the hard and soft parts of the temporal bone, but this is the first over-all study we have seen between covers. It is essentially a serial-section analysis which begins with embryology and carries through adulthood.

More than 550 series of sections were studied in the Wisconsin Collection, the Harvard Embryological, the Carnegie, and the Northwestern Collections. Under the aegis of the American Otological Society, its Central Bureau of Research provided the funds to bring the studies into print. It was thought that an intensive work-up of the developmental anatomy might lead to an understanding of how we hear, and why hearing becomes impaired. The answers do not appear. "The conflicting observations and interpretations indicate that the problem still remains unsolved. The subject matter on this most complicated organ, the ear, has not yet been exhausted" (page 448).

I. W. V.

► PAIN SYNDROMES - - -

By Bernard Judovich, M.D., Instructor in Neurology, Graduate School of Medicine, University of Pennsylvania; Physician in Charge, Neuralgia Clinic, Graduate Hospital, Philadelphia, and William Bates, M.D., F.A.C.S., F.I.C.S., Professor of Surgery, Graduate School of Medicine, University of Pennsylvania. Ed. 3. 374 pages, 181 illustrations. 1949, F. A. Davis Company, Philadelphia. $6.00.

The third edition of this book proves to be as useful and informative as the two previous ones plus the addition of some new, stimulating material on the anterior scalene syndrome and atypical facial pain. Technic of paravertebral block is discussed in detail. This book could be recommended to students as well as practitioners to point out interesting concepts of diagnosis and treatment of segmental pain.

A. B. B.

► BLOOD TRANSFUSION - - -

By Elmer L. DeGowin, M.D., Associate Professor of Internal Medicine, State University of Iowa; Robert C. Hardin, M.D., Assistant Professor of Internal Medicine, State University of Iowa; and John B. Alsever, M.D., Senior Surgeon, U. S. Public Health Service. 587 pages with 200 diagrammatic drawings. 1949, W. B. Saunders Company, Philadelphia & London. $9.00.

Blood has become an amazingly versatile medicine, and if an atomic war ever comes it will probably be our greatest single medical defense. Heretofore there was no single publication which comprehensively and adequately dealt with the problems of organizing and operating a blood transfusion service.

Two of the authors of this pioneering volume (E. L. D. and J. B. A.) were responsible for the publication of 3 O. C. D. manuals on blood transfusions, while the third (R. C. H.) was overseas faced with the problem of teaching the facts of blood transfusion to Army personnel. They felt keenly the absence of a suitable text, and the present volume is the result: a complete medical text book on blood transfusion, covering clinical use of blood and its derivatives, the immunology of blood, the preparation and administration of blood derivatives and of plasma and plasma substitutes.

In the technical section, the detailed and beautifully illustrated descriptions of laboratory procedures, advice on handling transfusion apparatus, and outline of the systematic operation of blood banks, and community, regional and state blood services are invaluable.

E. B. C.

► POSTTRAUMATIC EPILEPSY - - -

By A. Earl Walker, M.D., Formerly Professor of Neurologic Surgery, University of Chicago; Now Professor of Neurologic Surgery, Johns Hopkins University, Baltimore. 86 pages, 20 illustrations. 1949, Charles C Thomas, Springfield, Illinois. $2.75.

This small volume is one of a series of monographs on American lectures in surgery. The subject covered is a very important one in the field of medicine and probably has even wider implications than indicated by the author.

Dr. Walker limits his material to his own experience in the field of adult brain trauma secondary to war injuries. However, his excellent summary of the pathogenesis, neuropathology, neurophysiology, and neurochemistry of the brain in cerebral injuries offers an excellent background for the understanding of all brain trauma. This monograph is concluded with a discussion of the therapy. Dr. Walker admits that medical therapy is the treatment of choice but points out that when the form of therapy fails, surgery can, in many cases and in proper hands, offer excellent results.

A. B. B.

► FUNDAMENTALS OF INTERNAL MEDICINE - - -

By Wallace M. Yater, M.D., M.S., Director Yater Clinic, Washington, D.C.; Formerly Professor of Medicine and Director of the Department of Medicine, Georgetown University School of Medicine, Washington, D.C. Ed. 3. 1451 pages, 315 figures. 1949, Appleton-Century-Crofts, Inc., New York. $12.00.

In this revised edition of his treatise on Internal Medicine, Dr. Yater has followed his original plan of presenting a text which would eliminate as much theoretical material as possible, while including the essential information on diagnosis and treatment which every general practitioner and internist should have available.

Various specialists have collaborated with Dr. Yater on the revision of the text and certain chapters have been prepared by contributing authors.

In addition to the chapters on the manifold phases of internal medicine, Dr. Yater has included a discussion entitled, "The Physician Himself," in which he offers suggestions on such subjects as *The Art of Being a Medical Student, Medical Ethics,* and the *Future of Medical Practice.*

A. E.

► ALLERGY - - -

By Harry Swartz, M.D., Clinical Assistant, Allergy Out Patient Department, Roosevelt Hospital, New York. 210 pages. 1949, Rutgers University Press, New Brunswick, New Jersey. $2.75.

As the author says in the introduction to his book, "Allergy has fascinated people since they first heard of it." To millions of people, however, the interest is more than casual, and in this comparatively brief book, Dr. Swartz has attempted to present a comprehensive picture of this multifaceted complaint.

Starting with a chapter on the historical references and early observations on the disease, the author proceeds to discussions of the manifestations of allergy and its causative agents, as well as immunology and therapeutic drugs.

Of special interest is the chapter on "Personality Patterns," in which Dr. Swartz emphasizes the role played by the individual's personality structure and his reactions to situations inducing various allergic symptoms. Dr. Swartz believes that an allergic response can be evoked by any facet of our environment . . . "(it) is simply the heightening of a normal physiologic process, namely, the relaxation or dilatation of the small blood vessels, and is merely the result of the exaggeration of a necessary normal process." This normal process, continues the author, is primarily a process of protection and the allergic reaction is therefore the result of overextension of protection to a point of harm. Since the allergic reaction is a quantitative deviation from the normal, concludes Dr. Swartz, it is potential in every normal individual.

A. E.

► DISCOVERERS FOR MEDICINE - - -

By William H. Woglom, M.D. 229 pages. 1949, Yale University Press, New Haven. $3.75.

In every field of science, many outstanding discoveries and contributions to knowledge have been made by so-called amateurs. Though this may be less true of medicine and surgery, which by the nature of the professions require such specialized training, nevertheless even here, there have been developments first suggested by people more or less outside the medical profession.

Dr. Woglom feels that medicine should feel no hesitancy in acknowledging its debt to those "outside its own domain" who have made "imperishable contributions" to it. Of particular interest, says the author, are the attempts of primitive peoples to cure disease and the many folk remedies and observations which led to organized scientific experimentation and, in turn, to accepted methods of diagnosis and treatment.

The author has oriented subjects in their historical settings and has shown the inter-relationships between their work and the developing ideas of their time.

T. E.

► NEW HOPE FOR THE HANDICAPPED - - -

By Howard A. Rusk, M.D., Professor and Chairman of the Department of Rehabilitation and Physical Medicine, New York University College of Medicine; Associate Editor, The New York Times; and Eugene J. Taylor, Instructor, Department of Rehabilitation and Physical Medicine, New York University College of Medicine; Editorial Staff, The New York Times; With a foreword by Bernard M. Baruch. 231 pages. 1949, Harper & Brothers, New York. $3.00.

This book is a development of the thesis that "rehabilitation is the third phase of medical care following preventive and curative medicine and surgery."

Authors Rusk and Taylor emphasize that although the rehabilitation programs for disabled veterans are well organized, until recently little had been done for the thousands of civilians who each year are permanently disabled by accidents and illness. With numerous case histories the authors demonstrate that many apparently "hopeless" cases can be trained and re-educated to useful, independent living.

In addition to covering the practical phases of an effective rehabilitation program, the book discusses the social, economic, and emotional aspects of disability and their effects both on the nation and on the disabled individual.

C. S.

Books received will be acknowledged in this department each month. As space permits, books of principal interest to our readers will be reviewed more extensively.

A Textbook of Neuropathology. By Ben W. Lichtenstein, B.S., M.S., M.D., Associate Professor of Neurology, University of Illinois College of Medicine; State Neuropathologist, Illinois Neuropsychiatric Institute; Attending Neurologist, Cook County Hospital; Professor of Neurology, The Cook County Graduate School of Medicine; Attending Neuropsychiatrist, Mount Sinai Hospital, Chicago. 474 pages, illustrated. 1949, W. B. Saunders Company, Philadelphia & London. $9.50.

Blakiston's New Gould Medical Dictionary. Edited by Harold Wellington Jones, M.D., Colonel, U.S. Army, Retired, Contributing Editor, *Encyclopedia Americana,* Former Director, Army Medical Library, Washington, D.C.; Normand L. Hoerr, M.D., Ph.D., Professor of Anatomy, School of Medicine, Western Reserve University; Arthur Osol, Ph.D., Professor of Chemistry, Director of Chemistry Departments, Philadelphia College of Pharmacy and Science. With the assistance of an editorial board and over 100 contributors. Ed. 1. 1294 pages, with 252 illustrations, 129 in color. 1949, The Blakiston Company, Philadelphia & Toronto. Textbook edition, $8.50; Thin paper edition, $10.75; Deluxe edition, $13.50.

Medicine on the March. By Marguerite Clark, Head of Newsweek's Medicine Department. 307 pages. 1949, Funk & Wagnalls Company, New York. $3.50.

The Single Woman. By Robert Latou Dickinson and Lura Beam. (Reissue.) 469 pages. 1949, The Williams & Wilkins Company, Baltimore. $4.00.

Atlas of Roentgenographic Positions. By Vinita Merrill, while Educational Director, Picker X-ray Corporation. In two volumes. 663 pages, illustrated. 1949, The C. V. Mosby Company, St. Louis. $30.00.

Medicine of the Year. Editorial Direction by John B. Youmans, M.D., Dean, College of Medicine, University of Illinois. Contributions by Hugh J. Morgan, M.D., Professor of Medicine, Vanderbilt University; Frank Whitacre, M.D., Professor of Obstetrics and Gynecology, University of Tennessee; Henry G. Poncher, M.D., Professor of Pediatrics, University of Illinois; Warren H. Cole, M.D., Professor of Surgery, University of Illinois, and others. 143 pages. 1949, J. B. Lippincott Company, Philadelphia, London, and Montreal. $5.00.

Stomach Disease as Diagnosed by Gastroscopy. By Eddy D. Palmer, A.B., M.S., M.D., Major, Medical Corps, United States Army, Formerly Chief, Gastrointestinal Section, Walter Reed General Hospital, Washington, D.C. 200 pages, with 53 black and white illustrations and 56 in color by Phyllis Anderson. 1949, Lea & Febiger, Philadelphia. $8.50.

Text-Book of Ophthalmology. By Sir W. Stewart Duke-Elder, K.C.V.O., M.A., D.Sc. (St. And.), Ph.D. (Lond.), M.D., Ch.B., F.R.C.S., Hon. D.Sc. (Northwestern); Consulting Ophthalmic Surgeon to the British Army and the Royal Air Force; Director of Research, Institute of Ophthalmology, University of London; Fellow, University College, London; Consulting Surgeon, Moorfields Westminster and Central Eye Hospital; Ophthalmic Surgeon, St. George's Hospital, London. Vol. 4. The Neurology of Vision, Motor and Optical Anomalies. Pages 3473 to 4627. 1081 illustrations, including 71 in color. 1949, The C. V. Mosby Company, St. Louis. $20.00.

A Descriptive Atlas of Radiographs; An Aid to Modern Clinical Methods. By A. P. Bertwistle, M.B., Ch.B., F.R.C.S. Ed. 7, revised and enlarged. 622 pages, with 980 illustrations. 1949, The C. V. Mosby Company, St. Louis. $16.00.

Surgical Management of Vascular Diseases. By Gerald H. Pratt, M.D., F.A.C.S., Associate Clinical Professor of Surgery, New York University, Chief of the Vascular Clinic and Associate Attending Surgeon, Saint Vincent's Hospital; Attending Surgeon, St. Clair Hospital, New York; Diplomate of American Board of Surgery; Commander, Medical Corps, United States Naval Reserve. 496 pages, with 181 illustrations and 2 plates in color. 1949, Lea & Febiger, Philadelphia. $10.00.

Modern Practice in Psychological Medicine. Edited by J. R. Rees, M.A., M.D., F.R.C.P., Honorary Physician (Formerly Medical Director), Tavistock Clinic, London; Honorary Consulting Psychiatrist to the Army. With 28 contributors. 475 pages. 1949, Paul B. Hoeber, Inc., New York. $10.00.

Electrocardiographic Technique. By Kurt Schnitzer, R.T., M.D. 96 pages, illustrated. 1949, Grune & Stratton, New York. $3.50.

Atomic Energy and the Life Sciences. By the United States Atomic Energy Commission. 203 pages. 1949, United States Government Printing Office, Washington, D.C. $.45.

Bridges' Dietetics for the Clinician. Edited by Harry J. Johnson, M.D., F.A.C.P., Formerly Assistant Clinical Professor of Medicine, New York Post Graduate Medical School; Assistant Attending Physician to the Hospital, Associate Attending Physician to the Dispensary, Chief of the Nutrition Clinic, New York Post Graduate Hospital; Associate Attending Physician, French Hospital, New York, and 28 contributors. Ed. 5. 898 pages. 1949, Lea & Febiger, Philadelphia. $12.00.

A Thousand Marriages. By Robert Latou Dickinson and Lura Beam. (Reissue.) 482 pages. 1949, The Williams & Wilkins Company, Baltimore. $4.00.

Radiologic Exploration of the Bronchus. By S. Di Rienzo, M.D., Assistant Professor of Radiology and Physiotherapy; Chief of the Radiology Department of the Institute of Cancer, The University of Cordoba, Argentina. Translated by Tomas A. Hughes, M.D. 332 pages, illustrated. 1949, Charles C Thomas, Springfield, Illinois. $10.75.

Marihuana in Latin America: The Threat it Constitutes. By Pablo Osvaldo Wolff, M.D., Ph.D., M.A., Member of Expert Committee on Habit Forming Drugs of the World Health Organization. Sponsored by Washington Institute of Medicine. 56 pages. 1949, The Linacre Press, Inc., Washington, D.C. $1.50.

Medical Photography: Radiographic and Clinical. By T. A. Longmore, Hon. F.S.R., Principal, Kodak School of Medical Radiography and Clinical Photography; Hon. Editor of "Radiography." Ed. 4. 1008 pages, 320 diagrams and 120 photographic illustrations. 1949, The Focal Press, New York and London. $15.00.

Essentials of Orthopaedics. By Philip Wiles, M.S. (Lond.), F.R.C.S. (Eng.), F.A.C.S., Hon. Orthopaedic Surgeon, Middlesex Hospital and King Edward Memorial Hospital; Consulting Orthopaedic Surgeon, Royal Surrey County Hospital. 486 pages, with 7 color plates and 365 text figures. 1949, The Blakiston Company, Philadelphia & Toronto. $10.00.

The Practice of Refraction. By Sir Stewart Duke-Elder, K.C.V.O., M.A., D.Sc. (St. And.), Ph.D. (Lond.), M.D., F.R.C.S., Hon. D.Sc. (North Western), Surgeon-Oculist to H.M. The King; Knight of Grace of the Order of St. John; Consulting Ophthalmic Surgeon to the Army and the Royal Air Force; Director of Research, Institute of Ophthalmology, University of London; Consulting Ophthalmic Surgeon, Moorfields Westminster and Central Eye Hospital; Ophthalmic Surgeon, St. George's Hospital. Ed. 5. 317 pages, with 216 illustrations. 1949, The C. V. Mosby Company, St. Louis. $6.25.

The ABC of Acid-Base Chemistry; The Elements of Physiological Blood-Gas Chemistry for Medical Students and Physicians. By Horace W. Davenport. Ed. 2. 74 pages. 1949, The University of Chicago Press, Chicago, Illinois. $2.00.

German-English Medical Dictionary. Compiled by F. S. Schoenewald, M.D., Berlin. Introduction by Sampson Wright, John Astor Professor of Physiology, University of London. 241 pages. 1949, The Blakiston Company, Philadelphia & Toronto. $8.50.

EDITORIALS

NOTES ON SPEAKING

The comment has been made that the majority of physicians invited to address medical meetings today prefer to present formal papers rather than the type of informal clinic at which the teaching "greats" of an earlier day were so expert. But whether a lecturer elects to adhere to a rigid format or to offer an informal discussion, thought, planning, and organization of material should always precede the actual presentation.

Before a speaker chooses the sort of address he will offer, he should have some idea of the type and size of his prospective audience. The choice of subject is, of course, of prime importance and is determined by various factors. In many instances, the committee planning the meeting assigns the topics for discussion—in which case this particular problem is automatically solved. Sometimes, however, the subject is left to the speaker's option, although it is generally assumed that the lecturer will select a subject pertaining most closely to his particular specialty or experience and, in fact, most speakers are invited on that basis.

Once the subject has been chosen, the next step is to decide the approach to be followed—that is, whether the discussion shall be in the nature of a review, report of one or more cases selected because of their rarity, general interest, etc.; new concepts of diagnosis and of treatment, new procedures, drugs, or apparatus.

It is naturally difficult to state with any degree of finality just what is the best procedure to be followed in preparing a paper for oral presentation. As a general rule, however, it is well to begin with an outline, arranged in logical sequence, of the various points to be discussed. Important to any talk is the introduction which sets the tone, and serves to orient the audience. Except in unusual instances and when that is the object of the discussion, it is well to avoid a lengthy review of historical references or even current literature, as the listener who is genuinely interested in the subject has probably already read the material referred to, and the others are more interested in the new material the speaker has to offer than in a recapitulation of past work.

If it has been decided to prepare a formal address, either to facilitate organization of the material or because the paper is to be published and a manuscript must be submitted, the speaker should be conversant enough with his material so that he does not feel impelled to read his paper. Probably one of the quickest ways to alienate an audience is to read a paper; it is not only unflattering to the listeners but usually results in a tedious session.

If it is necessary to refer to extensive notes or if it has been impossible for the speaker to memorize his talk or familiarize himself with his material so that he can speak without notes, the best method is to use cards rather than to handle full-size manuscript sheets.

If the speaker knows his subject well, he should be able to manage with a concise outline from which he can refresh his memory and lead smoothly from one topic to the next.

If slides are shown and the paper is to be published later, the speaker will probably have to re-write those portions of his discussion which refer to the slides. Although it may appear obvious that the reader will gain little from such remarks as "Here you can see . . ." or "On this slide . . ." a surprising number of

lecturers allow their presentations to stand that way without correction.

Particularly advantageous in the presentation of talks directed to discussions of slides and of clinics in which patients are shown, is the extemporaneous talk. Such lectures require skill on the part of the speaker and a thorough familiarity with his subject, but even in these instances it is well to have an organized plan in mind if not on paper.

Of equal importance with the choice of subject and arrangement of material is the technic of delivery; many a paper of excellent context has been nullified by the speaker's lack of skill in presenting it. At most meetings, a microphone is provided and the speaker should guard against abrupt volume changes caused by turning away from the microphone to point out items on the screen, watch the pitch and inflection of his voice and avoid rustling papers or other noises which will be picked up and amplified by the microphone. In this connection, it may be well to mention elimination of all distracting mannerisms which tend to divert the audience's attention.

In the preparation of the talk itself, it has been aptly said that "It is a good axiom to stay a little deeper than the audience in order to stimulate them, but not deep enough to bewilder them," and further that it is "better to have the audience remember than wonder what you said." Though there may be a temptation to use a highly complex vocabulary, it is well to keep in mind that many hearers may not be fully acquainted with the latest terminology in a specialized field and the simpler the vocabulary selected the more it will be appreciated. The same principle holds when discussing apparatus or procedure that may be familiar to some segments of the audience—it is far better to explain and describe at least briefly than to assume that everyone understands what is being discussed.

In general, it is preferable to be as brief as is consistent with the subject and if a time limit has been set, to adhere to it. Running over the time allotted not only is discourteous to the audience and to the speaker who must follow but creates a problem for the meeting officials who must cut the speaker off at the end of his allotted time, or attempt to readjust the program schedule.

As with all other endeavors, one gains facility and ease in public speaking from experience. The recommendation has been made that some training in public speaking should be included in every medical student's training, at least during the residency period if not before.

Silence becomes dross not gold when it acts to withhold knowledge which could be translated into the service of others.

A. E.

THE RICE DIET

Among the more controversial methods of treating hypertension is a strictly dietary regimen, and particularly the so-called Kempner rice diet and the low sodium diet. In fact, as Dr. Irvine H. Page stated in a recently published article,[1] "The quickest way to start an argument among the people who work with hypertension is to mention . . . any kind of diet at all." He further wrote that it is believed by many that "any effects of the rice diet are due chiefly to the fact that it is a low salt diet."

The rice diet seems to have a definitely beneficial effect on many patients with benign hypertension, but there are certain disadvantages in its use. It is undeniably without savor and for this reason many people will not observe it conscientiously, preferring other methods of treatment rather than subsist on such monotonous fare.

Speaking before the American College of Physicians, Dr. Kempner himself emphasized that before any evaluation of the results of the rice diet can be made, the regimen must be followed under rigidly controlled conditions. There must be careful observation over

[1]Page, Irvine H., Corcoran, A. C., and Taylor, Robert D.: Diet in the treatment of hypertensive disease. Postgrad. Med. 5:211, (March) 1949.

a long period of time of the blood pressure, the heart (x-rays and electrocardiograms), opthalmoscopic examination, and scrutiny of the patient's symptoms.

According to Dr. Kempner, in 777 patients who followed the rice diet for periods varyings from four to 1150 days—with an average of 92 days—there was a "definite decrease" in blood pressure of 71 per cent of the total group. The fact was stressed that the greatest number of successful results was obtained in those patients who followed the diet longest.

In addition to its low salt content, the efficacy of the rice diet is also apparently based on its having a low content of protein and cholesterol, the theory being that these factors are detrimental in large quantities. It is believed that the ingestion of cholesterol leads to the deposition of cholesterol in the vessels, which is a matter of great importance in hypertension.

Proponents of the rice diet say that no essential deficiencies develop when it is used nor do patients starve. Furthermore, they claim that there is no breakdown of endogenous protein, even though the protein supply offered by the diet is low. If there is a deficiency in the amount of energy supplied by the diet, this can be augmented by adding sugar. Dr. Page states, however, that the idea that protein is harmful to the hypertensive patient is no longer considered valid.

Critics of the rice diet feel that while it has afforded interesting and promising results, and merits further study and experimentation, it should not yet be considered an established procedure in treating hypertensive disease.

A. E.

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Consultation Service

This special consultation information service is offered as a regular monthly feature of *Postgraduate Medicine*. Readers are invited to call on this Service for answers to difficult medical problems from members of our Editorial Board best qualified to help. Each question will be answered by mail and those of general interest will be published each month. Address all communications to Consultation Service, *Postgraduate Medicine*, 516 Essex Building, Minneapolis 3, Minnesota.

CONTRAINDICATIONS TO USE OF THIOURACIL

QUESTION: Is the use of thiouracil contraindicated in a patient with toxic goiter with auricular fibrillation?
M.D.—Washington

ANSWER: Thiouracil probably should not be used at all, because the less toxic propyl thiouracil is now available. There is no contraindication to using this drug with patients with auricular fibrillation. In fact, such patients should be prepared with propyl thiouracil prior to operation.

GEORGE CRILE, JR.

TREATMENT OF CONJUNCTIVITIS

QUESTION: In what form is penicillin most effective in the treatment of conjunctivitis due to the common pyogenic organisms?
M.D.—Michigan

ANSWER: Penicillin ointment, two thousand units calcium salt per gram, actually dispensed as penicillin ophthalmic ointment by reputable pharmaceutical houses seems to be the favorite form for use in the treatment of conjunctivitis. It should not be continued any longer than is absolutely necessary. The danger of penicillin sensitivity, local and general, is ever present.

DERRICK VAIL

DESOXYCORTICOSTERONE IN ADDISON'S DISEASE

QUESTION: What is the dosage and routine in the use of desoxycorticosterone in the treatment of Addison's disease?
M.D.—Massachusetts

ANSWER: Correct diagnosis is of first importance. Having made the diagnosis, and especially if it is made while the patient is in crisis, it is important to give large doses of adrenocortical extract, intravenously or intramuscularly up to 50 to 100 cc. in the first twenty-four hours, in addition to infusions of sodium chloride and glucose. As the patient improves the amount of cortical extracts administration is reduced and the optimal dosage determined; usually between 5 cc. and 20 cc. is required per day.

Patients may be carried on such treatment for months and years. The addition of 5 to 10 gm. of sodium chloride per day often makes it possible for the patient to carry on with a smaller amount of adrenocortical extract. Even with optimal therapy some patients will have occasional or repeated crises requiring emergency treatment again; these are apt to be precipitated by mild infections, great stress or strain.

It is often found convenient to implant pellets of desoxycorticosterone, thus eliminating the need for daily injections. Before doing so, one determines by trial the response of the patient to injections of desoxycorticosterone (1 to 5 mg. per day given intramuscularly). It is common practice to implant four pellets (each 75 mg.) and add more later if the dose is found to be inadequate. Some patients require six or even eight such pellets. When desoxycorticosterone is used, it is not advisable to give added salt.

Some patients tolerate desoxycorticosterone badly—especially if much salt is given; hypertension, edema, and cardiac damage may then occur. If it is well tolerated, implantation of a suitable number of pellets will often provide adequate therapy for six months or more, requiring renewal when the symptoms indicate inadequate absorption.

RAY F. FARQUHARSON

ORAL STREPTOMYCIN FOR INFANTILE DIARRHEA

QUESTION: What dosage of streptomycin by mouth is recommended for infantile gastroenteritis?
M.D.—Georgia

ANSWER: There is no unequivocal proof that streptomycin by mouth is of great value in infantile diarrhea. More commonly, the drug, when employed, has been administered parenterally in the customary dosage. Goetsch, Cobley, and Mulloy (Pediatrics 2:1-20 [July] 1948), recommend the use of streptomycin in a daily dose of 1 gm. for infantile diarrhea, given daily in divided doses every three hours; ½ gm. being given intramuscularly and ½ gm. orally. For small infants half this dosage was recommended.

Keefer and Hewitt (The Therapeutic Value of Streptomycin), recommend oral therapy in the treatment of infantile dysentery in a daily oral dosage of from 250 mg. to 1.5 gm. In general, a dose of ½ to 1 gm. per twenty-four hours, given in divided dosage, would seem to be acceptable. There seems to be no disadvantage in generous dosage, for systemic absorption does not occur from the intestinal tract, and there is, accordingly, no risk of toxic effects.

EDWARD B. SHAW

INTRAVENOUS ADMINISTRATION OF IRON

QUESTION: Is there an iron preparation that can be given intravenously for treatment of anemia in patients who do not respond to ferrous and ferric iron by mouth? Can it be used in pregnant women?

M.D.—Illinois

ANSWER: Most patients who do not respond to adequate amounts of ferrous iron, such as ferrous sulfate or ferrous gluconate, by mouth do not respond to intravenous injections. The most suitable preparation to use is an experimental preparation called Ferrivenin made by Benger's Ltd., Holmes Chapel, Cheshire, England.

TOM D. SPIES

MALE IMPOTENCY AT THE CLIMACTERIC

QUESTION: What are the methods of treatment for impotency in the male at the climacteric?

M.D.—Arkansas

ANSWER: There is no known treatment for impotency in the male at the climacteric.

No one can promise patients, at the climacteric, that testosterone will stimulate them sexually. It will clear up the symptoms of the climacteric, and give them better muscular tonus, and they will feel better and more normal. It produces the same effect in the male at the climacteric that estrogen does in the female, at the same time in life.

Occasionally some of these patients do experience improvement in potency. However, one must be sure that decrease or loss of potency is not psychic, for the mental processes have a predominating influence on the sex act. Get sufficient rest and avoid all excesses.

AUGUST A. WERNER

INFECTIONS WITH SCHISTOSOMA MANSONI

QUESTION: A male Puerto Rican, 34 years of age, consulted me for what appeared to be acute appendicitis. He had rebound tenderness, positive Rovsing's sign, point tenderness over McBurney's area, and pain in the right lower quadrant on rectal examination. WBC was 8,000 with a normal differential. In spite of conservative management, symptoms became progressively worse and an appendectomy was done and a normal appearing appendix removed. Pathologic report was subacute appendicitis with Schistosoma mansoni. Because of language difficulty, an adequate history was almost impossible to obtain.

Are there any figures relative to the incidence of appendicitis due to this type of infestation?

M.D.—Indiana

ANSWER: The entire intestinal tract usually is involved in infections with Schistosoma mansoni. This involvement consists of the deposition of eggs in the various layers of the intestinal tract and the reaction which follows. Some of the reaction consists in the formation of thrombi in the small vessels and in ulceration. The appendix often is involved in these types of lesions. However, the occurrence of acute or subacute appendicitis as a result must be considered relatively rare.

Ova commonly are found in the appendix in infections with Schistosoma mansoni; however, there is no evidence that this causes symptoms of acute or subacute appendicitis, except occasionally. Even more rare is the occurrence of chronic appendicitis due to the deposition of eggs in the appendix, in spite of the fact that well over half of the appendices found in patients infected with Schistosoma mansoni contain eggs deposited in the various layers of the organ.

Definite figures showing the incidence of clinical appendicitis due to infection with Schistosoma mansoni do not appear to be available.

HEPARIN AND DICUMAROL FOR CARDIAC INFARCTION

QUESTION: What is the present status of heparin and/or dicumarol in the treatment of cardiac infarction? Should they be given routinely?

M.D.—Connecticut

ANSWER: The theoretical basis for anticoagulant therapy in coronary thrombosis appears to be sound. Physiologically, we have three objectives:

1. To prevent propogation of the initial thrombus.
2. To inhibit the development of deep venous thrombosis.
3. To prevent embolism from mural thrombi (cardiac) and from peripheral venous thrombi.

The data presented by Wright (Am. Heart J., Vol. 36, No. 6) is strong evidence for the routine use of anticoagulant therapy. Others have good support for this conclusion. Coagulation therapy has significantly reduced the death rate and the incidence of thrombo-embolism. The improvement in the death rate statistics is a reflection of this reduction in thrombo-embolism.

Most patients have been treated with dicumarol alone. Physiologically, it is most reasonable to treat with heparin and dicumarol, discontinuing heparin (usually after forty-eight hours) as the dicumarol effect develops. The use of Heparin/Pitkin Menstruum (Loewe and Eiber, Am. Heart J., Vol. 37, No. 5) offers theoretical and practical advantages. Dangerous complications from anticoagulant therapy are minimized by good laboratory control. Without the latter, this therapy should not be undertaken.

The routine use of heparin and/or dicumarol is recommended in cardiac infarction unless specific contraindications exist (hepatic, renal). This therapy should be initiated as soon as the patient is seen. The development of thrombo-embolism is always an indication for this therapy. Dicumarol therapy should be continued for a minimal period of thirty days after the last thrombo-embolic accident.

J. D. GOLDSTEIN

Association Notes

PHILADELPHIA ASSEMBLY PROGRAM
INTERSTATE POSTGRADUATE MEDICAL ASSOCIATION

Public Auditorium—Philadelphia—October 31 to November 3, 1949

Monday, October 31

8:30 A.M.

8:30 Diagnostic Clinic: "The Diagnosis and Treatment of Cerebral Aneurysm."

Dr. Bernard J. Alpers, Professor of Neurology, Jefferson Medical College, Philadelphia, Pennsylvania.

9:00 Diagnostic Clinic: "Hodgkin's Disease."

Dr. Antonio Rottino, Director, Hodgkin's Research Laboratory, St. Vincent's Hospital, New York, New York.

9:30 Diagnostic Clinic: "Management or Treatment of Neuroses in the General Hospital."

Dr. Baldwin L. Keyes, Professor of Psychiatry, Jefferson Medical College, Philadelphia, Pennsylvania.

10:00-11:00 *Intermission for Review of Exhibits*

11:00 Diagnostic Clinic: "Surgery of Gastric and Duodenal Ulcer."

Dr. Isidor S. Ravdin, John Rhea Barton Professor of Surgery and Director of the Harrison Department of Surgical Research, University of Pennsylvania School of Medicine; Professor of Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

11:30 Diagnostic Clinic: "The Causes of Unsatisfactory Results after Operation on The Gall Bladder and Bile Ducts."

Dr. Richard B. Cattell, Surgeon, Lahey Clinic; Surgeon, New England Baptist Hospital; Surgeon-in-Chief, New England Deaconess Hospital, Boston, Massachusetts.

Noon Intermission

1:30 P.M.

1:30 Diagnostic Clinic: "Surgical Treatment of Bronchiectasis."

Dr. George P. Rosemond, Associate Professor of Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania.

2:00 Diagnostic Clinic: "The Management of Massive Gastro-Intestinal Hemorrhage."

Dr. J. William Hinton, Professor of Clinical Surgery, Chairman, Department of Surgery, New York University-Bellevue Medical Center of New York University Post-Graduate Medical School; Director of Surgery, University Hospital, New York, New York.

2:30 Diagnostic Clinic: "Laennec's Cirrhosis."

Dr. Leonard G. Rowntree, Miami, Florida; Formerly Director of the Philadelphia Institute for Medical Research; Formerly Professor of Medicine, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minnesota; Formerly Chief, Medical Division, U. S. Selective Service.

3:00-4:00 *Intermission for Review of Exhibits*

4:00 Address: "Clinical and Radiologic Correlation of Gastro-intestinal Lesions."

Dr. Leon Solis-Cohen, Associate in Radiology, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

4:30 Address: "Dynamic Etiological Concepts."

Dr. Edward A. Strecker, Professor of Psychiatry and Chairman of the Department of Psychiatry, University of Pennsylvania School of Medicine; Professor of Psychiatry, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

5:00 Address: "The Hyperventilation Syndrome."

Dr. James J. Short, Director of the Department of Medicine, Graduate School of Medicine, College of Medical Evangelists; Associate Professor of Medicine, College of Medical Evangelists School of Medicine, Los Angeles, California.

Dinner Intermission

7:30 P.M.

7:30 Address: "Disturbances of Gastrointestinal Function Following Partial Gastrectomy."

Dr. Eric E. Wollaeger, Clinical Section, Mayo Clinic; Assistant Professor in Medicine, Faculty of the Mayo Foundation, Graduate School, University of Minnesota, Rochester, Minnesota.

8:00 Address: "Surgical Treatment of Inguinal Hernia."

Dr. William L. Estes, Bethlehem, Pennsylvania, Visiting Lecturer in Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

8:30 Address: "Harmful Effects from Repeated X-ray Exposure."

Dr. W. Edward Chamberlain, Professor and Head of the Department of Radiology, Temple University School of Medicine, Philadelphia, Pennsylvania.

9:00 Address: "The Effect of A Hormone of The Adrenal Cortex (Cortisone, Compound E) and A Pituitary Adrenocorticotropic Hormone (ACTH) on Rheumatoid Arthritis."

DR. PHILIP S. HENCH, Head of a Section in Medicine, Mayo Clinic; Professor of Medicine, University of Minnesota (Mayo Foundation), Rochester, Minnesota.

9:30 Address: "Important Considerations in The Diagnosis and Treatment of Infantile Paralysis."

DR. EDGAR J. HUENEKENS, Clinical Professor of Pediatrics, University of Minnesota Medical School; Medical Director, Sister Elizabeth Kenny Foundation, Minneapolis, Minnesota.

Tuesday, November 1

8:00 A.M.

8:00 Diagnostic Clinic: "Commissurotomy for Mitral Stenosis."

DR. CHARLES P. BAILEY, Associate Professor of Surgery (Thoracic), Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania.

DR. ROBERT P. GLOVER, Instructor in Surgery (Thoracic), Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania.

DR. THOMAS J. O'NEILL, Instructor in Surgery (Thoracic), Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania.

8:30 Diagnostic Clinic: "Carcinoma of Large Bowel."

DR. W. WAYNE BABCOCK, Emeritus Professor of Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania.

9:00 Diagnostic Clinic: "The Treatment of Status Asthmaticus."

DR. RICHARD A. KERN, Professor and Head of the Department of Medicine, Temple University School of Medicine; President, Philadelphia County Medical Society; General Chairman, Interstate Postgraduate Medical Association Philadelphia Committee, Philadelphia, Pennsylvania.

9:30 Diagnostic Clinic: "The Clinical Use of Histamine."

DR. BAYARD T. HORTON, Head of Section in Division of Medicine, Mayo Clinic; Associate Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota, Rochester, Minnesota.

10:00-11:00 *Intermission for Review of Exhibits*

11:00 Diagnostic Clinic: "Bilateral Laryngeal Paralysis."

DR. CHEVALIER L. JACKSON, Professor and Head of the Department of Laryngology and Broncho-Esophagology, Temple University School of Medicine, Philadelphia, Pennsylvania.

11:30 Diagnostic Clinic: "Diseases of The Stomach and Duodenum."

DR. WALTMAN WALTERS, Mayo Clinic; Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minnesota; President-Elect, Interstate Postgraduate Medical Association of North America.

Noon Intermission

1:30 P.M.

1:30 Address: "Present Status of Anticoagulant Therapy in The Treatment of Thrombo-embolic Diseases."

DR. IRVING SHERWOOD WRIGHT, Professor of Clinical Medicine, Cornell University Medical College; Attending Physician, New York Hospital, New York, New York.

2:00 Diagnostic Clinic: "Pulmonary Suppuration."

DR. EVARTS A. GRAHAM, Bixby Professor of Surgery and Head of the Department, Washington University School of Medicine, St. Louis, Missouri; President, Interstate Postgraduate Medical Association of North America.

2:30 Diagnostic Clinic: "Ulcerative Colitis."

DR. FRANK H. LAHEY, Director, Lahey Clinic; Surgeon, New England Deaconess Hospital; Surgeon-in-Chief, New England Baptist Hospital, Boston, Massachusetts.

3:00-4:00 *Intermission for Review of Exhibits*

4:00 Address: "Lempert Decompression Operation for Hydrops of The Endolymphatic Labyrinth in Ménière's Disease."

DR. JULIUS LEMPERT, Lempert Institute of Otology, New York, New York.

4:30 Address: "The Problem of Immediate Gastrectomies in Acute Perforations."

DR. PAUL BANZET, Chirurgien de L'Hopital Broussais, Membre de L'Academie de Chirurgie, Paris, France.

5:00 Address: "Hearing Aids."

DR. WILLIAM G. HARDY, Associate Professor of Laryngology and Otology, Johns Hopkins University School of Medicine; Director, Hearing and Speech Center, The Johns Hopkins Hospital, Baltimore, Maryland.

Dinner Intermission

7:30 P.M.

7:30 Address: "Tuberculin Negative, Histoplasmin Positive, Disseminated Pulmonary Calcification."

DR. MICHAEL L. FURCOLOW, Senior Surgeon, Field Studies Branch, Division of Tuberculosis, Federal Security Agency, U.S. Public Health Service, University of Kansas Medical Center, Kansas City, Kansas.

8:00 Address: "Repair of Tendon Injuries in the Hand with Special Reference to Flexor Tendons."

MR. R. GUY PULVERTAFT, F.R.C.S., Surgical Director, Orthopaedic and Accident Service—Derby; Surgeon, Harlow Wood Orthopaedic Hospital; Civilian Orthopaedic Specialist to the Royal Air Force, Derby, England.

8:30 Address: "Contact Lenses, Tinted Lenses, and Telescopic Spectacles."

DR. ALFRED COWAN, Professor of Ophthalmology, University of Pennsylvania Graduate School of Medicine; and Staff of Wills Eye Hospital, Philadelphia, Pennsylvania.

9:00 Address: "Treatment of Erythroblastosis Fetalis by Exchange Transfusion."

DR. ALEXANDER S. WIENER, Brooklyn, New York; Head, Transfusion Division, Jewish Hospital, New York City; Serologist, Office of the Chief Medical Examiner, New York City; Lecturer, Department of Forensic Medicine, New York University College of Medicine, New York, New York.

Wednesday, November 2

8:00 A.M.

8:00 Diagnostic Clinic: "Abnormalities of Infants Ascribable to Factors Other Than Genetic."

DR. CHARLES C. CHAPPLE, Assistant Professor of Pediatrics, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

8:30 Diagnostic Clinic: "Carcinoma of The Larynx."

DR. LOUIS H. CLERF, Professor of Laryngology and Broncho-Esophagology, The Jefferson Medical College of Philadelphia, Philadelphia, Pennsylvania.

9:00 Diagnostic Clinic: "Management of Peptic Ulcer."

DR. GEORGE CRILE, JR., Cleveland Clinic, Cleveland, Ohio.

9:30 Diagnostic Clinic: "The Differential Diagnosis of The Enlargements of The Kidney."

DR. HERMAN L. KRETSCHMER, Professor of Urology (Surgery), University of Illinois College of Medicine, Chicago, Illinois; Past President, Interstate Postgraduate Medical Association of North America.

10:00-11:00 *Intermission for Review of Exhibits*

11:00 Diagnostic Clinic: "The Diagnosis and Treatment of Infectious Hepatitis."

DR. RUFUS S. REEVES, Director, Department of Public Health, City of Philadelphia, Pennsylvania.

11:30 Diagnostic Clinic: "Segmental Neuralgia."

DR. WILLIAM BATES, Professor of Surgery and Vice Dean for Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

Noon Intermission

1:30 P.M.

1:30 Diagnostic Clinic: "The Prognosis in Coronary Heart Disease."

DR. WILLIAM G. LEAMAN, JR., Professor of Medicine and Chairman of the Department, Woman's Medical College of Pennsylvania, Philadelphia, Pennsylvania.

2:00 Diagnostic Clinic: "Diverticulitis of The Colon."

DR. CHARLES W. MAYO, Surgical Section, Mayo Clinic; Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester.

2:30 Address: "The Anesthesiologist's Contribution to The Management of The Surgical Patient."

DR. URBAN H. EVERSOLE, Head of The Department of Anesthesiology, Lahey Clinic, Boston, Massachusetts.

3:00-4:00 *Intermission for Review of Exhibits*

4:00 Address: "Treatment of Glaucoma." (The Schneider Foundation Eye Presentation.)

DR. FRANCIS H. ADLER, William F. Norris and George E. de Schweinitz, Professor of Ophthalmology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

4:30 Diagnostic Clinic: "Myocardial Infarction."

DR. WILLIAM D. STROUD, Professor of Cardiology, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania.

5:00 Address: "Surgery of The Bile Ducts."

DR. JAMES T. PRIESTLEY, Surgical Section, Mayo Clinic; Professor of Surgery, The Mayo Foundation, University of Minnesota Graduate School of Medicine, Rochester, Minnesota.

ASSEMBLY DINNER

Crystal Ballroom—Benjamin Franklin Hotel—Informal

7:00 P.M.

For members of the profession, their ladies and friends.

Program

Welcome and presentation of President Dr. Evarts A. Graham, St. Louis, Missouri, by

DR. RICHARD A. KERN, President, Philadelphia County Medical Society, Philadelphia, Pennsylvania; General Chairman, 1949 Philadelphia Assembly of the Interstate Postgraduate Medical Association of North America.

Addresses

"Changing Concepts in Surgery."

DR. EVARTS A. GRAHAM, President, Interstate Postgraduate Medical Association of North America; Bixby Professor of Surgery and Head of the Department, Washington University School of Medicine, St. Louis, Missouri.

Presentation of DR. WALTMAN WALTERS, President-Elect of the Interstate Postgraduate Medical Association of North America; Mayo Clinic; Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minnesota.

Baffling Demonstration of The Occult. By Mr. Kuda Bux of Pakistan and New York City.

Thursday, November 3

8:00 A.M.

8:00 Diagnostic Clinic: "Periodic Fever and Periodic Abdominalgia."

DR. HOBART A. REIMANN, Magee Professor of Medicine and Acting Head of the Department of Experimental Medicine, Jefferson Hospital, Jefferson Medical College, Philadelphia, Pennsylvania.

8:30 Diagnostic Clinic: "The Cerebral Palsy Problem."

DR. WINTHROP M. PHELPS, Medical Director, Children's Rehabilitation Institute, Baltimore, Maryland.

9:00 Diagnostic Clinic: "The Surgical Treatment of Ulcerative Colitis."

Dr. L. Kraeer Ferguson, Professor of Surgery, Woman's Medical College of Pennsylvania, Philadelphia, Pennsylvania.

9:30 Diagnostic Clinic: "Rehabilitation of Common Neuromuscular Disorders."

Dr. George Morris Piersol, Chairman, Department of Medicine and Professor of Medicine, University of Pennsylvania Graduate School of Medicine; Director of the Center for Research and Instruction in Physical Medicine, Philadelphia, Pennsylvania.

10:00-11:00 *Intermission for Review of Exhibits*

11:00 Diagnostic Clinic: "The Present Status of Medical Management of Thyroid Disease."

Dr. Michael G. Wohl, F.A.C.P., Associate Professor of Medicine and Chief of Endocrine Clinic, Temple University School of Medicine, Philadelphia, Pennsylvania.

11:30 Diagnostic Clinic: "Scientific Problems in Medicine."

Dr. Kenneth E. Appel, Professor of Clinical Psychiatry, University of Pennsylvania School of Medicine; Assistant Professor of Psychiatry, University of Pennsylvania Graduate School, Philadelphia, Pennsylvania.

Noon Intermission

1:00 P.M.

1:00 Diagnostic Clinic: "Management of Elderly Patients."

Dr. Edward L. Bortz, Chief, Medical Service "B" in the Lankenau Hospital; Associate Professor of Medicine, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pennsylvania; Past President, American Medical Association.

1:30 Address: "Induction of Labor."

Dr. Frederick H. Falls, Professor of Obstetrics and Gynecology, and Head of the Department, University of Illinois College of Medicine, Chicago, Illinois.

2:00 Diagnostic Clinic: "Treatment of Hypothyroidism."

Dr. Elmer L. Sevringhaus, Director of Clinical Research, Hoffmann-La Roche, Inc., Nutley, New Jersey; formerly Professor of Medicine, University of Wisconsin Medical School, Madison, Wisconsin.

2:30-3:00 *Intermission for Review of Exhibits*

(Exhibits will be dismantled at 3:00 P.M.)

3:00 Address: "The Advances in The Diagnosis and Treatment of Acute Intestinal Obstruction."

Dr. Thomas A. Shallow, Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia, Pennsylvania.

3:30 Award of the Medallion of Honor of the Interstate Postgraduate Medical Association of North America to

Dr. Chevalier Jackson

Honorary Professor of Broncho-Esophagology,
Temple University School of Medicine,
Philadelphia, Pennsylvania

Music.

Comments by:

Dr. William N. Parkinson, Dean, Temple University School of Medicine, Philadelphia, Pennsylvania: for Temple University.

Mr. Robert Livingston Johnson, President, Temple University, Philadelphia, Pennsylvania; National Chairman of the Citizens Committee for The Reorganization of the Executive Branch of The Government: for the Citizens of Philadelphia.

Presentation of Medallion by Dr. Waltman Walters, Mayo Clinic, Rochester, Minnesota, President of the Interstate Postgraduate Medical Association.

Response by Dr. Chevalier Jackson.

4:00 Music—Adjournment.

SPECIAL INFORMATION

PLACE OF ASSEMBLY

The members of the Assembly will have the pleasure of convening in the Philadelphia Public Auditorium. Its equipment is modern in every detail and meets every requirement to carry on the Assembly successfully, such as acoustics, seating capacity, large stage, temporary hospital, electrical equipment, etc.

The opening session of the scientific and clinical program will begin promptly at 8:30 o'clock Monday morning, October 31, 1949.

Registration

The registration fee for the four-day session is $5.00.

Interns, graduate nurses, technicians and dietitians will be admitted upon the payment of $1.00 registration fee. Senior medical students and senior student nurses will be admitted free of charge upon presentation of proper credentials at the registration desk. Undergraduates not admitted.

Guests of the Association (i.e., those appearing on the scientific and clinical program) are requested to register.

Life Members are requested to show their Life Membership card at the time of registration.

Out-of-town physicians arriving Sunday and Philadelphia physicians are urged to register in advance of the opening of the Assembly, Sunday afternoon, October 30, at the Hotel Benjamin Franklin.

Place of Registration

The main Registration Department will be at the Philadelphia Public Auditorium. This Department will open Monday morning, October 31.

Everyone attending the Assembly must register. A distinctive badge will be issued to all professional men and women at the time of registration, and a distinctive button will be issued to the senior medical students and senior student nurses. No one will be permitted to attend the scientific and clinical sessions or visit the exhibits unless a badge or button is shown. It is suggested that the badge or button be worn. Your cooperation in this matter is requested.

Technical Exhibits

INTERSTATE POSTGRADUATE MEDICAL ASSEMBLY

ABBOTT LABORATORIES, North Chicago, Ill. (Booth 33), will exhibit a number of its leading products, such as rapid repository penicillin; the AEROHALOR, a simplified device for administering powdered penicillin into the respiratory tract; DULCET TABLETS, medication in candy form; NEMBUTAL, a short-acting barbiturate; SUR-BEX, a triple-coated vitamin B complex tablet; and VI-DAYLIN, a liquid vitamin preparation for infants and children.

THE ALKALOL COMPANY, Taunton, Mass. (Booth 170): This exhibit features ALKALOL, the balanced, alkaline, saline solution for the treatment of mucous membranes and irritated tissues. It is bland, nontoxic, effective and it has been a favorite since 1896. We are also showing IRRIGOL, a powder which in solution makes an aseptic, slightly astringent vaginal douche. It is widely used also for colonic irrigations and as an effective rectal enema.

A. S. ALOE COMPANY, St. Louis, Mo. (Booths 186, 187, 188): You are most welcome at our exhibit where we are displaying a large selection of new instruments and equipment for the modern doctor's office. Featured is the ALOE line of physiotherapy equipment designed especially for doctors' use and combining the utmost in functional utility with modest price.

AMERICAN HOSPITAL SUPPLY CORPORATION, Evanston, Ill. (Booth 30): BAXTER Intravenous Solutions; blood transfusion and plasma equipment with disposable BAXTER accessories for their use; blood grouping serums; TOMAC Oral Protein Supplement—a remarkably palatable, non-hydrolyzed, highly efficient powdered protein; the MONAGHAN PORTABLE RESPIRATOR (new hope for polio patients); and a selected group of TOMAC Specialties.

AMERICAN OPTICAL COMPANY, *Scientific Instrument Division,* Buffalo, N.Y. (Booth 82), will exhibit new medical and pathologist's microscopes, one-third lighter and much more rigid than former models, with many mechanical and optical improvements. The new cool and efficient microscope lamp No. 735, the PHASE MICROSCOPE, the rapid and accurate Hb-Meter, the BRIGHT-LINE HAEMACYTOMETER, the direct-result colorimeter, and a new and simple routine microscope with built-in lamp will also be shown. For those interested in projection, the new tri-purpose MC DELINEASCOPE for 2 x 2 slides and single and double frame slidefilm will also be on display.

AMERICAN SAFETY RAZOR CORPORATION, Brooklyn, N.Y. (Booth 113): An invitation is extended to visit our booth so that we may demonstrate to you the A.S.R. COMMAND EDGE SURGEON'S BLADE, A.S.R. DOUBLE EDGE RAZOR BLADES, and A.S.R. SANITARY UTILITY PROTECTOR, with its eight different uses. We feel sure that a visit to our booth will prove profitable.

AMES COMPANY, INC., Elkhart, Ind. (Booth 59): Company representatives will be glad to discuss DECHOLIN tablets and DECHOLIN sodium ampules, the standard hydrocholeretic agents for the treatment of biliary tract diseases. They will be demonstrating CLINITEST and HEMATEST—simplified tests for detecting urine-sugar and occult blood.

APPLETON-CENTURY-CROFTS, INC., New York, N.Y. (Booth 14), is displaying the new *Operative Technic* by 54 American surgeons, the new edition of Kolmer's *Clinical Diagnosis,* Yater's *Internal Medicine,* Maingot's *Abdominal Operations,* and other titles of recent publication. You are invited to examine them at your leisure.

THE ARMOUR LABORATORIES, Chicago, Ill. (Booths 122, 123), will welcome members of the I.P.M.A. to visit their exhibit while attending their annual convention. Information on many new items in the field of endocrinology recently made available to the medical profession by The Armour Laboratories may be secured at the exhibit.

AYERST, McKENNA & HARRISON, LTD., New York, N.Y. (Booth 16): PREMARIN (estrogenic substances —water-soluble)—a highly effective and well-tolerated preparation of naturally-occurring, orally active, conjugated estrogens (equine). The potency of PREMARIN is expressed in terms of its principal estrogen, sodium estrone sulfate. PREMARIN provides convenience of administration and flexibility of dosage. Four potencies of PREMARIN tablets are available. PREMARIN is also presented in liquid form.

THE BAKER LABORATORIES, INC., Cleveland, O. (Booth 141): BAKER'S MODIFIED MILK is fortified, adjusted and processed to obtain more efficient nutritive action and to insure better tolerance. BAKER'S has an adjusted protein, two carbohydrates, a modified fat, vitamins, soluble mineral salts and iron coupled with simplicity of preparation and low cost. The powder or liquid form may be used interchangeably from birth to the end of the bottle-feeding period.

BARD-PARKER COMPANY, INC., Danbury, Conn. (Booth 180): Genuine Bard-Parker RIB-BACK surgical knife blades—"the blade that assures cutting efficiency"; surgical knife handles, including long handles for deep surgery, hysterectomy and eye handles, and laboratory handles; Bard-Parker FORMALDEHYDE GERMICIDE—a sporicidal solution; instrument sterilizing containers; CHLOROPHENYL, an ideal office and ward instrument disinfectant; hematological cases and pipettes.

A. C. BARNES COMPANY, New Brunswick, N.J. (Booth 9), cordially invites all physicians to visit their new exhibit. ARGYPULVIS, a recent addition to the Barnes line, will be featured by a series of illuminated color transparencies depicting an effective new treatment for trichomonas vaginalis vaginitis. Literature and profession-

al samples will be available. ARGYROL and OVOFERRIN also will be on display. See the Barnes color and sound films—*Cervicitis-Etiology & Treatment* and *Nonoperative Treatment of Paranasal Sinusitis* at the Scientific Motion Picture Exhibit.

W. A. BAUM CO., INC., New York, N.Y. (Booths 132, 133): The big news here will be the Baumanometer AIR-LOK CUFF. The simplicity and unique effectiveness of this new blood pressure cuff is attained by making the air pressure in the rubber bag do the work. No metal part of any kind is employed. The new PHLEBAUMANOMETER (Burch-Winsor) for determining the blood pressure in large and small veins will also be displayed as well as all of the current models of the Lifetime BAUMANOMETER.

BECTON, DICKINSON & CO., Rutherford, N.J. (Booth 164), will exhibit their general line of hypodermic syringes and needles, clinical thermometers, Ace bandages, and diagnostic instruments. We are going to feature all types of B-D Vacutainer equipment with emphasis on the new Culture Bottle.

BILHUBER-KNOLL CORPORATION, Orange, N.J. (Booth 75): Visit our booth for the up-to-date developments among our fine medicinal chemicals, BROMURAL, DILAUDID, METRAZOL, OCTIN, THEOCALCIN, and others. Each fills an importance place in the physician's armamentarium of dependable and useful medication and is prescribed alone or in combination to meet the needs of the individual patient.

BIRTCHER CORPORATION, Los Angeles, Calif. (Booth 171), will display the new CRYSTAL BANDMASTER S.W. DIATHERM using the new Triple Inductive-Drum—the latest development for administering diathermy by the large area technic, so widely discussed. Also may be seen other units made by Birtcher, including the famous HYFRECATOR, the BLENDTOME PORTABLE ELECTROSURGICAL UNIT and other interesting items. You are cordially invited to visit our booth and meet Mr. Don Maxwell and Mr. Harry McCloud.

J. BISHOP & COMPANY PLATINUM WORKS, Malvern, Pa. (Booths 154, 155): Exhibiting the new Bishop SEMPRA Syringe with interchangeable plungers and barrels. Also exhibiting a full line of Bishop Hypodermic Needles made from 18/8—the "safe" stainless steel—and regular BLUE LABEL syringes and BLUE LABEL thermometers.

THE BLAKISTON COMPANY, Philadelphia, Pa. (Booth 34): See Blakiston's *New Gould Medical Dictionary*—the newest, most modern, and most complete book in its field. Hundreds of new words found in no other medical dictionary, an anatomic atlas, and scores of distinctive features make this an essential book for every physician. It is easy-to-use; it is authoritative; it is accurate. This is not a revision of the old Gould, but a brand new first edition, completely rewritten from beginning to end.

BORCHERDT MALT EXTRACT COMPANY, Chicago, Ill. (Booth 88): MALT SOUP EXTRACT, a laxative modifier of milk for constipated babies, will be shown. This product is now also available as DRI-MALT SOUP EXTRACT, a fluffy, yellow powder, which some mothers find easier to measure and use than the liquid form. Borcherdt's BORPLEX—the children's tonic—a multivitamin product with iron and manganese in tasty malt syrup, will also be shown.

THE BORDEN COMPANY, New York, N.Y. (Booth 13): A new, improved, better than ever BIOLAC is presented—better nutritionally and better physically. Unchanged are the dilutions, analysis, caloric values, vitamin fortification, and ease of feeding. This new improved BIOLAC, a liquid modified milk for infant feeding, brings to you the latest findings of nutritional science—at no increase in cost. Likewise exhibited will be our long-established products for infant feeding: DRYCO, MULL-SOY, MERRELL-SOULE SPECIAL MILKS, general purpose KLIM, and BETA LACTOSE.

BREWER & COMPANY, INC., Worcester, Mass. (Booths 60, 61): This exhibit consists of specialties centering around THESODATE, the original enteric-coated tablet of theobromine sodium acetate, and LUASMIN, a combination of theophylline sodium acetate, phenobarbital, and ephedrine for the treatment of asthma. Also, Brewer capsules and ampules, other specialties including SODUXIN (sodium succinate-Brewer) and standard pharmaceuticals manufactured by Brewer and Company, Inc., including a complete line of vitamin preparations for internal use and injection. GEL-ETS, the newest mode in oral vitamin therapy and AMCHLOR, enteric-coated, 1 gm. tablets of ammonium chloride are also featured.

BRISTOL-MYERS COMPANY, New York, N.Y. (Booth 145), cordially invites you to visit its booth where representatives will be in attendance to extend a hearty welcome to all visitors and to answer any questions pertaining to BUFFERIN, SAL HEPATICA and other famous products on display.

BROOKS APPLIANCE COMPANY, Chicago, Ill. (Booth 77): Doctors will want to visit our booth and inspect the quality products of A De St. Dalmas Company, Limited of Leicester, England, on display. This company has been the manufacturer of fine bandages since 1823. The MEDICATED PRIMER plus ELASTIC ADHESIVE DALZOFLEX may be used to advantage in treating leg ulcers, phlebitis, etc. Our Mr. Ayer will describe in detail the technic of application. Proctologic instruments, syringes, needles, and elastic hosiery will also be displayed.

THE BURDICK CORPORATION, Milton, Wis. (Booth 214), will have on display their complete line of Physical Medicine Equipment including the X 85 FCC approved DIATHERMY APPARATUS and their new DIRECT RECORDING ELECTROCARDIOGRAPH. Physicians are invited to register at the Burdick booth for a copy of *Syllabus* which is a compilation of information on the use of physical medicine equipment.

BURROUGHS WELLCOME & CO. (U.S.A.), INC., Tuckahoe, N.Y. (Booth 199): Among significant products featured will be GLOBIN INSULIN with Zinc, B. W. & Co., the intermediate acting insulin; DEXIN brand high dextrin carbohydrate, in which the nonfermentable proportion predominates; DIGOXIN, the pure, stable, crystalline glycoside which offers predictable digitalization; and TABLOID brand DIPHENAN, the new product for pinworms.

CAMBRIDGE INSTRUMENT CO., INC., New York, N.Y. (Booth 200), will exhibit its new SIMPLI-SCRIBE DIRECT WRITER, a portable electrocardiograph which incorporates many unique and important design developments; size is only 10⅜″ by 10⅜″ by 11″, weight 28 pounds. Also on display will be the SIMPLI-TROL portable and MOBILE models of the Cambridge standard string galvanometer electrocardiographs and electrocardiograph-stethographs; the Cambridge PLETHYSMOGRAPH which provides standardized, quantitative, and reproducible records of variations in volume of human extremities as determined by the state of fullness of the blood vessels; and the Cambridge ELECTROKYMOGRAPH for continuously recording heart border motion.

CAMEL CIGARETTES, *Medical Relations Division,* New York, N.Y. (Booths 206, 207), will feature color slides of background data from their newest research. After weekly examination of the throats of hundreds of men and women smoking CAMEL Cigarettes exclusively for thirty days, throat specialists reported "not one single case of throat irritation due to smoking CAMELS."

CAMERON HEARTOMETER COMPANY, Chicago, Ill. (Booth 153): See the improved HEARTOMETER, a scientific precision instrument for accurately recording systolic and diastolic blood pressures, also furnishing a permanent graphic record of the pulse rate, disturbances of the rhythm, myocardial response, the action of the valves, as well as peripheral vascular circulation. The HEARTOMETER clearly reveals heart disturbances in both early and advanced stages and is of great value in checking the progress of treatments.

CAMERON SURGICAL SPECIALTY COMPANY, Chicago, Ill. (Booth 127): See the new SUCTION COAGULATION HANDLE and numerous accessories for all phases of electrosurgery, electrocauterization, electrocoagulation, desiccation, and fulguration; Cameron Surgical Units; Electro-Diagnostic Lamp and Instrument outfits; the new stainless steel BOROS FLEXIBLE ESOPHAGOSCOPE and other peroral equipment; COAGULAIR and DUALITE SIGMOIDOSCOPES; TELE-VAGINALITE; MIRROLITE and other headlites; binocular loupes; illuminated specula, endoscopes, retractors and other instruments for all types of diagnosis, treatment, and surgery.

S. H. CAMP AND COMPANY, Jackson, Mich. (Booth 87): A series of illuminated transparencies depicting anatomic conditions before and after application of Camp anatomic supports will be displayed. Experts in attendance will answer questions pertaining to scientific application of anatomic supports and advise regarding availability of them in Authorized Service departments throughout the country.

CARNATION COMPANY, Los Angeles, Calif. (Booths 195, 196): You are invited to visit our booths, where you will see an attractive display on CARNATION EVAPORATED MILK—"the milk every doctor knows." Some valuable information on the use of this milk for infant feeding, child feeding, and general diet will be presented and the method by which Carnation is generously fortified with pure crystalline vitamin D—400 U.S.P. units per reconstituted quart—will be explained. Interesting literature will also be available for distribution.

G. W. CARNRICK CO., Newark, N.J. (Booth 90): Professional representatives will welcome the opportunity of discussing with I.P.M.A. members newly-introduced GWC ethical preparations including THELESTRIN IN AQUEOUS SUSPENSION, LUTESTROGEN IN SESAME OIL, NEOHEMOCHROMIN CAPSULES, DICALOSSA TABLETS, HEMOCHROMIN WITH B COMPLEX AND VITAMIN C. Descriptive literature and complimentary supplies of numerous GWC products, including ENTEROSOLS HORMOTONE "T," are available on request.

THE CENTRAL PHARMACAL COMPANY, Seymour, Ind. (Booth 38), will feature the newest advancement in salicylate therapy, and physicians will be furnished with the latest scientific information on our ENTABS and SYRUP NEOCYLATE—the original PABA salicylate products for treatment of arthritic and rheumatoid conditions. Physicians will also be interested in learning more about the SYNOPHYLATE or THEOPHYLLINE-SODIUM GLYCINATE products, which represent definite improvements in theophylline therapy. These products have merited the Council seal of approval. The newest sulfa preparations will be prominently displayed as the TRISULFAZINE line.

CIBA PHARMACEUTICAL PRODUCTS, INC., Summit, N.J. (Booths 146, 147), invite you to visit their exhibit for latest information on PRISCOLINE (formerly known as PRISCOL, a valuable adjunct to the treatment of peripheral vascular disease. PYRIBENZAMINE, HCL, the antihistaminic drug for prevention and relief of anaphylaxis and many forms of allergy will also be featured. Representatives in attendance will gladly answer any questions about these and other Ciba products.

COMMERCIAL SOLVENTS CORPORATION, New York, N.Y. (Booths 159, 160), will feature at its exhibit several new bacitracin preparations. Included are BACITRACIN NASAL, BACITRACIN ORAL TABLETS, and BACITRACIN TROCHES. Also in the display will be SOLUTION CHOLINE GLUTANATE, INOSITOL, KWELL OINTMENT, and CSC's line of penicillin products.

CORECO RESEARCH CORPORATION, New York, N.Y. (Booth 50), will feature continuous demonstrations of its AUTOMATIC CLINICAL CAMERA which requires neither lights, stands, focusing nor anything connected with photography and is capable of photographing all body surfaces and all body cavities.

CUTTER LABORATORIES, Berkeley, Calif. (Booth 183), cordially invites you to visit their display. They will exhibit the Cutter line of INTRAVENOUS SOLUTIONS in Saftiflasks with the latest expendable equipment for administration. The latest advances and additions to the blood fractions group of products, penicillin products, and our improved ALHYDROX immunizing agents will also be on display for your inspection.

DAVIES, ROSE & COMPANY, LIMITED, Boston, Mass. (Booth 152): It gives us great pleasure to each year have the opportunity to again bring our products to the attention of the members of the I.P.M.A. In no product of our manufacture do we have more pride than in our DIGITALIS PILLS. Their physiologic potency, which has been found so constant and dependable, merits the appreciation and approval of the American medical fraternity. Our Messrs. Orne and Purinton will welcome your visits.

F. A. DAVIS COMPANY, Philadelphia, Pa. (Booth 105): You will be interested in examining the many new books and new editions on display. To mention a few: *Blood and Plasma Transfusions*—Strumia and McGraw; *Clinical Interpretations of Laboratory Tests*—Goodale; *Neurology*—Alpers; *Clinical Cystoscopy*—McCrea; *Internal Diseases of the Eye*—Troncoso; *Cardiovascular Disease*—Stroud; *Dermatology*—Greenbaum; *Human Physiology*—Hamilton; *Pain Syndromes*—Judovich and Bates; *Urology*—McCrea; *Reparative and Reconstructive Surgery*—May; *Acute Medical Disorders*—Murphy.

DAVIS & GECK, INC., Brooklyn, N.Y. (Booths 210, 211), manufacturers of sterile surgical sutures, will offer a wide range of suture materials and suture-needle combinations specially prepared for every type of surgery. Literature available will include the D & G Manual, Suturegrams, booklets, and leaflets on sutures and wound healing and various reprints. The D & G Surgical Film Library will offer a program of selected surgical subjects including several films recently added to the library. Programs and information concerning this service may be obtained at the Cinema Room.

THE DENVER CHEMICAL MFG. CO., INC., New York, N.Y. (Booth 37): GALATEST, for the instantaneous determination of urine sugar, and ACETONE TEST (Denco) for the detection of acetone in urine will be exhibited. You are cordially invited to visit our booth for demonstration of these "spot tests" for sugar and acetone. GALATEST and ACETONE TEST (Denco) offer advantages of accuracy, simplicity, and economy in routine urinalysis.

DePUY MANUFACTURING COMPANY, Warsaw, Ind. (Booths 167, 168), will display, for your consideration, splints, fracture appliances, simple aluminum splints for hand and finger injuries that are pervious to the x-ray, hyperextension frame, leg splints, LORENZO BONE SET for hip fractures, Smith-Petersen nails, Kuntscher nails, Blount Stapling Set, in fact a complete line for the general practitioner and the surgeon. Come in and see us, you are always welcome. Mr. Rex Orr will be in charge of the booth, and will answer any of your questions.

DESITIN CHEMICAL COMPANY, Providence, R.I. (Booth 103): DESITIN OINTMENT, the pioneer in external cod liver oil therapy, combines crude high potency Norwegian cod liver oil, zinc oxide, and talcum in a lanolin petrolatum base. Owing to its content of a balanced and standardized crude cod liver oil, DESITIN OINTMENT alleviates pain and relieves itching promptly. It promotes granulation and epithelization. DESITIN OINTMENT is not liquified under body temperature, not decomposed by secretion, forming therefore a perfect protection for the skin. Indications: Postoperative dressings; slow-healing wounds; indolent varicose chronic ulcers; burns of all degrees; lacerations; bed sores; hemorrhoids and fissures. DESITIN POWDER, a unique medicinal toilet powder. It contains crude cod liver oil, zinc oxide, magnesium oxide and talcum. We invite you to visit our exhibit and acquaint yourself with the latest uses of cod liver oil therapy in your practice. Representatives will be happy to greet you.

DEVEREUX SCHOOLS, Devon, Pa., and Santa Barbara, Calif. (Booth 15): Devereux Schools provide the physician with facilities for the education and treatment of children having academic or emotional difficulties. Twelve schools in Pennsylvania and California offer a controlled environment and "education with therapy" designed to meet the needs of each child. Our clinical center with the services of two psychiatrists, two physicians, and psychologic staff, all in residence, cooperates with the referring physician in his plans for the child's training and care. Representatives will gladly answer questions or discuss how Devereux may serve you and your patients. John M. Barclay in charge.

THE DeVILBISS COMPANY, Toledo, O. (Booths 184, 185): Several newly developed products keynote our display of professional and prescription types of instruments. The new pocket-size, fine mist atomizer and the overnight No. 149 STEAM VAPORIZER stress greater convenience for the user. The No. 740 HAND PUMP considerably simplifies the home administration of aerosols. Also featured and authenticated by clinical and experimental work are Kodachrome transparencies depicting the distribution in the lungs and bronchi of aerosols of penicillin, streptomycin, and epinephrine.

THE DIETENE COMPANY, Minneapolis, Minn. (Booth 151): Visit our exhibit and see MERITENE, the fortified whole protein supplement, that is really palatable and reasonably priced. DIETENE, the only Council accepted reducing supplement will be on display too. Also examine the free personal-type Diet Service that is available to physicians. The diets look as if they were typed in your office for each individual patient.

DOAK COMPANY, INC., Cleveland, O. (Booth 172), exhibits nationally recognized dermatological preparations including: SALINIDOL as indicated in treatment of ringworm infections including tinea capitis, tinea corporis and tinea pedis; BURO-SOL POWDER (Doak), a soluble powder of aluminum acetate indicated as a wet dressing; TERSUS, an ideal soapless detergent used as skin and scalp cleanser in all cases intolerant to soaps, alkaline cleansers. TERSUS is also indicated in treatment of acne; LOTIO ALSULFA (Doak) is an activated colloidal sulfur lotion indicated in treatment of acne; HELIOBROM LOTION—an astringent and antipruritic lotion indicated in treatment of all irritated skin conditions including poison ivy, penicillin rash, pruritus ani and pruritus vulvae. Clinical material and literature will be supplied on request.

THE DOHO CHEMICAL CORPORATION, New York, N.Y. (Booths 118, 119): The makers of AURALGAN are featuring at this meeting their new sulfa preparation, O-TOS-MO-SAN, indicated in the treatment and control of chronic suppurative ears. Our representatives will be happy to explain in detail the workings of these medications. Also, to distribute hospital aural instruction charts and other charts of the anatomic and pathologic diseases of the ear.

DUKE LABORATORIES, INC., Stamford, Conn. (Booth 177), display ELASTOPLAST, stretchable, adhesive-surfaced bandages and unit dressings; GELOCAST, prepared Unna-paste bandage; NIVEA CREME, NIVEA SKIN OIL and BASIS SOAP, the "prescriber's" cosmetics; and AQUAPHOR, hydrophilic ointment base.

DUREX PRODUCTS, INCORPORATED, New York, N.Y. (Booth 69): The most extensive line of A.M.A. accepted contraceptive devices and preparations will be displayed for your examination and approval. Here you will be able to inspect BOW-BEND, DURAFLEX, MENSINGA and DUREX COIL SPRING DIAPHRAGMS, four types of diaphragm inserters and, of course, LACTIKOL JELLY and LACTIKOL CREME. Unique combination sets for convenient dispensing will be demonstrated.

E & J MANUFACTURING COMPANY, Glendale, Calif. (Booth 44): Visitors are cordially invited to visit our booth to witness demonstrations of the E & J automatic resuscitator and inspect the new E & J GAS ANESTHESIA MACHINES. Entirely new methods of design and construction are featured in both units. The clinical doll that breathes is an interesting part of the exhibit.

EATON LABORATORIES, INC., Norwich, N.Y. (Booth 98), presents the latest FURACIN dosage form: FURACIN EAR SOLUTION anhydrous, often effective in chronic, refractory otitis. Other specialties include TRIPAZINE: triple sulfa tablet without sulfathiazole, decreasing need for fluid and alkali and minimizing reciprocal sensitization; PARACIN: scabicide, pediculicide and ovicide efficacious in one application; ASPOGEN: basic aluminum salt of the amino acid glycine, an efficient, palatable adjunct for peptic ulcer therapy. Recent clinical studies of LOROPHYN SUPPOSITORIES indicate the effectiveness of this simple technic.

EDIN ELECTRONICS COMPANY, Worcester, Mass. (Booth 150): A complete line of electrocardiographs, electroencephalographs and medical-research equipment will be exhibited. Features of the ink writing electrocardiograph and electroencephalograph include the extremely low mast of the ink writing galvanometer which makes a very fast deflection speed possible. Single and multiple channel recording oscillographs and physiologic amplifiers will also be displayed. A staff of field engineers will be on hand to answer inquiries.

ELECTRO-PHYSICAL LABORATORIES, INC., New York, N.Y. (Booth 78).

ELECTRONIC SURGICAL EQUIPMENT CO., INC., Philadelphia, Pa. (Booth 169): Exhibited here is the RADIOSURG SCALPEL Operating Unit (fully rectified construction), a portable radio frequency surgical apparatus of advanced engineering design. This precision instrument permits the use of varied electronic surgical methods to meet the minor surgical needs of the general physician, proctologist, gynecologist, or surgeon. Constructed according to exacting specifications, it supplies ideal current characteristics.

J. H. EMERSON COMPANY, Cambridge, Mass. (Booth 213): The latest developments in IRON LUNGS to aid the patient and to make nursing care easier will be shown. Several models of the familiar EMERSON RESUSCITATOR will also be demonstrated.

ENCYCLOPAEDIA BRITANNICA, Philadelphia, Pa. (Booth 218), will exhibit their product, the new post-war *Encyclopaedia Britannica.*

ETHICON SUTURE LABORATORIES, New Brunswick, N.J. (Booths 161, 162), will feature the swaging of its new ATRALOC (EYELESS) NEEDLES with the seamless swage in a new exhibit prepared for this convention. Also on display will be the complete line of Ethicon sutures for every surgical need—the STERILE PACK canister, BIOSORB POWDER, and Ethicon Tantalum surgical products.

FANCEE FREE MFG. COMPANY, St. Louis, Mo. (Booth 178): Maternity patients will appreciate your telling them to wear a FANCEE FREE GARTER BELT during their pregnancies. It's the all elastic garter belt that fits around the waist in back and swings below the abdomen in front thus eliminating all pressure. Excellent too for general wear as it prevents the dangers of pressure that might cause varicosities, etc. Be sure to register for pamphlets listing the stores in your city that carry FANCEE FREE's.

FELLOWS MEDICAL MFG. CO., INC., New York, N.Y. (Booth 66), cordially invites you to visit their exhibit for information on the latest products developed in their laboratories. FELLO-SED will be featured, Fellows sedative elixir—chloral hydrate potentiated by calcium bromide—presented in an aromatic sugar-free vehicle which successfully masks the odor and taste of chloral. Other products on exhibit: ARBEC SUPPOSITORIES—Fellows aminophylline barbiturate compound in a newly developed base—for prompt relief and rest in asthmatic conditions; ERQUA TABLETS and LIQUID—sodium salicylates and menadione for safer salicylate therapy; IONLEX with folic acid—ferrous gluconate, liver, and B complex in therapeutic doses.

H. G. FISCHER & CO., Franklin Park, Ill. (Booth 3): Inspect H. G. Fischer & Co.'s modern, efficient, low priced x-ray and physical therapy equipment. Let them point out many features of advantage in these representative units and other models not on display and also explain their extremely liberal terms of sale. Your visit welcome—no obligation.

C. B. FLEET CO., INC., Lynchburg, Va. (Booth 102): PHOSPHO-SODA (Fleet) has come to occupy a significant position wherever sodium phosphates or other salines are indicated. It is a pure, stable, aqueous concentrate of the two U.S.P. sodium phosphates with a history of more than fifty years of manufacture and ethical distribution. Should you not be thoroughly acquainted with PHOSPHO-SODA (Fleet), the representatives at the booth will discuss with you the chemistry, advantages and possible application of PHOSPHO-SODA (Fleet) in your practice.

FLINT, EATON & COMPANY, Decatur, Ill. (Booths 85, 86): The introduction of choline therapy in early and late cirrhosis of the liver is one of the most interesting of recent medical developments. An easy and palatable way of administering choline to your patients is featured at our booth. An up-to-the-minute edition of a very comprehensive digest on the present status of choline therapy is available. Interesting and unusual color photographs of liver pathology are also featured.

GARDNER MANUFACTURING CO., Horicon, Wis. (Booth 1): After one year of additional extensive research, we will display the finished model of the GLOVE DRYING MACHINE shown for the first time last year in Cleveland. This item is indeed revolutionary in the hospital field. Also displayed will be the famous Gardner line of RADIA-

TOR ENCLOSURES and other sheet metal specialties such as HOSPITAL BEDSIDE TABLES, CRACKED ICE CONTAINERS and a Sportsman's cabinet for the hunter or fisherman.

GERBER PRODUCTS COMPANY, Fremont, Mich. (Booth 67), presents the only complete line of baby foods—Gerber's Cereal Trio, Strained and Junior fruits, vegetables, soups and desserts, plus Strained and Junior meats prepared from ARMOUR quality beef, veal and liver. These meats for babies are kept at ready-to-serve temperatures for your examination and comparison. Ask the Gerber professional representative about them.

OTIS E. GLIDDEN & CO., INC., Evanston, Ill. (Booth 26): Our representatives are on hand to discuss ZYMENOL, an emulsion with brewer's yeast, for effective bowel management without resorting to the use of irritant drugs, dehydrating salines, or bulking agents. Effective but not habit forming. Professional samples and descriptive literature available.

GRUNE & STRATTON, INC., New York, N.Y. (Booth 204): Notable among the new G & S books are: *Cardiovascular Disease,* by Louis H. Sigler; *Synopsis of Hernia,* by Alfred H. Iason; *Regional Ileitis,* by Burrill B. Crohn; *Elements of Medical Mycology,* Second Edition, by Jacob H. Swartz; *Early Carcinoma of the Uterine Cervix,* by Hansjakob Wespi; *Atlas of Ovarian Tumors,* by Gemma Barzilai; *Rapid Microchemical Methods for Blood and Cerebrospinal Fluid Examination,* by F. Rappaport; George R. Minot *Symposium of Hematology; Surgery of the Eye,* Second Edition, by Meyer Wiener; *Histology and Histopathology of the Eye and Its Adnexa,* by I. G. Sommers.

HANOVIA CHEMICAL AND MANUFACTURING COMPANY, Newark, N.J. (Booth 89): For the first time Hanovia will exhibit and demonstrate a new SHORT WAVE DIATHERMY MACHINE that meets the requirements of the Federal Communications Commission; a unit possessed of features that will be interesting to you. Also on display will be oral and general body type ultraviolet self-lighting lamps, SOLLUX INFRARED LAMPS, and GERMICIDAL LAMPS for the destruction of airborne bacteria. A cordial invitation is extended to visit with us.

CHR. HANSEN'S LABORATORY, INC., "JUNKET" BRAND FOODS, Little Falls, N.Y. (Booth 45): Visual aids explain the importance of rennet in infant and adult nutrition and the value of rennet desserts in both normal and restricted diets. Trained personnel available at all times to answer questions in detail. Authoritative literature is available describing dietary applications of rennet products. Complimentary packages of "JUNKET" RENNET POWDER and "JUNKET" RENNET TABLETS for the profession.

THE HARROWER LABORATORY, INC., Glendale, Calif. (Booth 117): The exhibit has three main points of interest: (1) Gastroscopic illustrations of the coating action of MUCOTIN, the mucin antacid. MUCOTIN is Council accepted; (2) The role of hemoglobin oxygen and B complex in the release of energy is graphically presented together with the formulation of hematocrin; (3) The physiologic action of PRULOSE, the new corrective treatment for constipation, is demonstrated. Literature and samples are available at the booth.

H. J. HEINZ COMPANY, Pittsburgh, Pa. (Booth 149), will display STRAINED and JUNIOR FOODS as well as a wide variety of nutrition material. Doctors will find the products of interest not only for feeding infants and other small children, but also in gastrointestinal cases, preoperative and postoperative disturbances, oral troubles, geriatrics, and a number of conditions where STRAINED and JUNIOR FOODS are required.

PAUL B. HOEBER, INC., *Medical Book Department of Harper & Brothers,* New York, N.Y. (Booth 128): The entire list of distinguished Hoeber books will be on display. Among the helpful volumes you will want to inspect are Alvarez: *Introduction to Gastroenterology* (4th Edition); Harris' *Brucellosis* (2nd Edition); Babkin's *Secretory Mechanism of the Digestive Gland* (2nd Edition), Fowler's *Clinical Hematology* (2nd Edition), and many others. There will also be proofs of important forthcoming titles, such as Jolliffe, Tisdall and Cannon's *Clinical Nutrition.* Don't overlook this opportunity to learn about the many new Hoeber books now available and on the way.

HOFFMANN-LA ROCHE, INC., Nutley, N.J. (Booth 68), will feature GANTRISIN, the new sulfonamide which has outstanding therapeutic advantages. GANTRISIN is distinguished by comparatively high solubility even in neutral and slightly acid solutions. It is not likely to cause crystalluria and it does not require concomitant alkali therapy. GANTRISIN is highly effective especially in the treatment of urinary tract infections. Why not stop at the Roche booth where representatives will be in attendance to tell you more about GANTRISIN, the radically different sulfonamide.

HOLLAND-RANTOS COMPANY, INC., New York, N.Y. (Booth 142): Medical service representatives will be pleased to show you the anatomically correct PELVI-FORM CLINICAL TEACHING MODEL which provides an invaluable aid to visual demonstration not only of diaphragm-jelly technic, but for explaining gynecologic abnormality or establishing surgical approach. New package design of KOROMEX contraceptive specialties will interest you. Upon request, you can obtain samples not only of Council accepted KOROMEX JELLY and CREAM, but also of NYLMORATE JELLY, a trichomonacide that is effective, inexpensive, and convenient to use.

HOLLISTER-STIER LABORATORIES, Wilkinsburg, Pa. (Booth 39): Specialists in allergenic products for diagnosis and treatment, members of the staff are available to answer specific questions pertaining to this firm's Personalized Allergy Service of nationwide scope. Testing sets for pollen and other allergenic extracts are displayed along with therapeutic extracts and treatment dilutions. Accessories for office and laboratory use are being demonstrated, and an opportunity given to reserve a copy of Allergy Handbook, pollen survey, and sundry items.

IRWIN, NEISLER & COMPANY, Decatur, Ill. (Booths 197, 198): You are cordially invited to visit our exhibit. There will be displayed such clinically valuable products as VERATRITE and VERTAVIS for the treatment of hypertension. A staff of trained professional service representatives will be in attendance to answer any of your questions and assist you in any way possible.

JOHNSON & JOHNSON, New Brunswick, N.J. (Booths 83, 84), features HEMO-PAK, demonstrating the latest developments in the field of hemostatic absorbable surgical dressings. The new, improved adhesive tape, perfected in the Johnson & Johnson research laboratories, is also on display along with several recent additions to a complete line of surgicals.

JONES METABOLISM EQUIPMENT CO., Chicago, Ill. (Booth 208): Featured in the exhibit will be the new Jones unit, the Jones MULTI-BASAL. This new unit, by means of a double-bellows arrangement and two-speed clock, affords four combinations of time and volume controls, thereby permitting the doctor or technician to fit the machine directly to the requirements of the individual patient, whether of large or small size, slow or fast oxygen consumption, regular or irregular breathing. You are cordially invited to visit the Jones exhibit and see a demonstration of this new and different unit.

THE KELLEY-KOETT MANUFACTURING CO., Covington, Ky. (Booths 189, 190, 191): A sincere welcome awaits the visitors to view the latest low priced radiographic-fluoroscopic X-ray unit. This ADD-A-UNIT combination is full size and shown complete with new floor to ceiling tubestand, tilt table, and automatic shockproof generator. Corresponding low priced the unit is adaptable to 15, 30 MA, 100 MA, or 200 MA X-ray technics whenever desired.

KIDDE MANUFACTURING CO., INC., Bloomfield, N.J. (Booths 132, 133): Complete demonstration of the new improved KIDDE UTEROTUBAL INSUFFLATORS with exclusive Gasometer pressure control together with KIDDE OPAQUE OIL ATTACHMENT for salpingography, etc. See new improvements including STRIP KYMOGRAFH and FLOW METER. The improved KIDDE DRY ICE APPARATUS with orifice "non-clog" vent control, also on display. Makes cryotherapy a practical means of treating most superficial skin lesions.

CHARLES B. KNOX GELATINE CO., INC., Johnstown, N.Y. (Booth 65), features the medical and dietary uses of KNOX PLAIN SPARKLING GELATINE and also the development of the KNOX SPECIAL GELATINE SOLUTION, INTRAVENOUS 6% which the Knox Gelatine Company has perfected as a safe and economical substitute for blood plasma in the management of shock. Attendants will gladly discuss the protein value of gelatine and explain how the production and laboratory control make KNOX GELATINE a quality product, helpful in special dietary cases. Literature, including dietaries and recipes, is free.

LAKESIDE LABORATORIES, INC., Milwaukee, Wis. (Booths 47, 48), introduces its new oral mercurial diuretic TABLETS MERCUHYDRIN(R) WITH ASCORBIC ACID for use in maintenance therapy of congestive heart failure. The parenteral form will also be featured. Representatives will be on hand to explain their use in the routine therapy of congestive heart failure.

LA MOTTE CHEMICAL PRODUCTS COMPANY, Baltimore, Md. (Booth 64): For thirty years the La Motte Chemical Products Company has been supplying physicians and clinical laboratories with simple, reliable testing sets such as the LA MOTTE BLOOD SUGAR OUTFIT. As new and specialized methods are developed, La Motte outfits have made them available to the physician. Among the new tests this year will be a new liver function test; a new blood protein test; an improved P.S.P. outfit employing the new bi-color method of comparison; and the cardiolipin antigen for syphilis serology.

LANTEEN MEDICAL LABORATORIES, INC., Chicago, Ill. (Booth 130), cordially invites you to visit their booth. Representatives will be pleased to discuss an improved diaphragm fitting technic used in conjunction with the new improved LANTEEN FLAT SPRING DIAPHRAGM and LANTEEN JELLY. Other well known Lanteen products will also be featured in the exhibit.

LEA & FEBIGER, Philadelphia, Pa. (Booth 10): Members of the I.P.M.A. will find the Lea & Febiger exhibit of particular interest because of their display of such outstanding new books and new editions as Palmer—*Stomach Disease as Diagnosed by Gastroscopy;* Kessler on *Rehabilitation;* Pratt on *Surgical Management of Vascular Diseases;* Hartman and Brownell—*The Adrenal Gland;* Comroe on *Arthritis;* Singer—*Differential Diagnosis of Chest Diseases;* Quiring—*Collateral Circulation;* Bridges—*Dietetics for the Clinician;* Lichtman—*Diseases of the Liver, Gallbladder and Bile Ducts;* Tuft—*Clinical Allergy,* and many others.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, New York, N.Y. (Booth 93): You are cordially invited to visit our exhibit, where you will find representatives who are prepared to give you the latest information on Lederle products.

THE LIEBEL-FLARSHEIM COMPANY, Cincinnati, O. (Booth 120), cordially invites you to visit their exhibit where the latest L-F diathermy and electrosurgical apparatus will be available for examination and demonstration. This year's exhibit features the OFFICE BOVIE, an electrosurgical unit specially designed for office use. Capable representatives will be on hand at all times and we hope you will stop by so that we may become acquainted.

ELI LILLY AND COMPANY, Indianapolis, Ind. (Booths 134, 135, 136), center their exhibit this year around an interesting demonstration of the rapid slide flocculation test for the serodiagnosis of syphilis with Cardiolipin. Tests made with Cardiolipin have been found to be more easily performed than earlier ones, and their sensitivity is as good or better than others using a lipoid antigen. False positive reactions, although not completely avoided by the Cardiolipin test, are materially reduced, especially in malaria.

J. B. LIPPINCOTT COMPANY, Philadelphia, Pa. (Booths 95, 96), presents an interesting and active exhibit of professional publishing. With the "pulse of practice" centering in an advisory editorial board of active clinicians who constantly review the field, current and coming trends in medicine and surgery are known continually. On the studied recommendations of these medical leaders, Lippincott Selected Professional Books are undertaken.

LLOYD BROTHERS, PHARMACISTS, INC., Cincinnati, O. (Booth 121): This exhibit will feature a group of new, clinically established specialty pharmaceuticals. Our representatives will welcome your visit, and an op-

portunity to demonstrate a working model of the LLOYD PATENTED DRUG EXTRACTION PROCESS.

M & R DIETETIC LABORATORIES, INC., Similac Division, Columbus, O. (Booth 76), will display SIMILAC, a food for infants. Our representatives will appreciate the opportunity to discuss the merit and suggested application for both the normal and special feeding cases.

THE MACMILLAN COMPANY, New York, N.Y. (Booth 36): New titles of interest to practitioners of medicine will include Markovits: *Bone and Joint Radiology;* Reich: *Diseases of the Aorta;* Burstein: *Fundamental Considerations in Anesthesia.* The new edition of the now famous Cutler-Zollinger: *Atlas of Surgical Operations* will receive considerable attention. Volume IV of the widely known *Cornell Conferences on Therapy* is in preparation, and material from it will be available for examination.

MALLON CHEMICAL CORPORATION, New York, N.Y. (Booths 118, 119): Mallon, division of Doho Chemical Corporation, is introducing the new topical anesthesia, RECTALGAN, for relief of pain and itching in hemorrhoids and pruritus. This new therapy enjoys many advantages over the outmoded rectal suppositories and ointments. Our representatives will be happy to explain, in detail, the workings of this medication.

THE MALTBIE CHEMICAL COMPANY, Newark, N.J. (Booth 131), will feature at the International Assembly CHOLAN-DH (dehydrocholic acid), a potent and nontoxic agent for the therapeutic stimulation of copious bile flow. The Maltbie Chemical Company introduced the first American process for converting crude viscous ox bile into dehydrocholic acid. Trained representatives will be available to discuss the practical applications of CHOLAN-DH in the medical management of biliary disease.

F. MATTERN MFG. COMPANY, Chicago, Ill. (Booths 124, 125), invites you to visit their exhibit to examine the latest in design of x-ray equipment. On display will be the much talked of PUSH BUTTON CONTROL 100 MA UNIT which leads the x-ray field not only in style and quality but also in being reasonably priced. Courteous and experienced personnel will be at your service to answer any questions.

McNEIL LABORATORIES, INC., Philadelphia, Pa. (Booth 56): Interesting facts about the new Council accepted specialties, LIQUOID MER-DIAZINE and LIQUOID METHA-MERDIAZINE, plus an exhibit of the advantages of BUTISOL SODIUM, N.N.R., SYNDROX HYDROCHLORIDE, N.N.R., and other new preparations will be presented. The booth will be in charge of Mr. H. M. Schabacker who will be on hand to welcome you.

MEAD JOHNSON & COMPANY, Evansville, Ind. (Booths 111, 112): AMIGEN and PROTOLYSATE will be on display at the Mead Johnson exhibit at the I.P.M.A. International Assembly. Mead Johnson has pioneered the amino acid field commercially; the products have been described in more than four hundred articles in the medical literature. Trained representatives will be on hand to discuss details of the new amino acid products. Shown also will be DEXTRI-MALTOSE, PABLUM, PABENA, OLEUM PERCOMORPHUM and other Mead products used in infant nutrition.

MEDICAL CASE HISTORY BUREAU, New York, N.Y. (Booth 205): A handy, compact method for keeping complete case histories is being shown by the INFO-DEX RECORD SYSTEM. Their history charts are so arranged on folders that subsequent cards are attached by means of a cotter pin which holds the cards together in correct sequence. No cards can be lost or detached. Swing any card out and both sides are visible. Different colored cards are available for various types of data such as laboratory, x-ray findings, etc. There is included in this system an automatic diagnostic cross-indexing. All cases of the same disease can be identified instantly. They also have on display simple methods of keeping the charges on the case as well as very fine steel filing cabinets in which to house these history charts and bookkeeping records.

MEDICAL FILM GUILD, New York, N.Y. (Booth 179 and adjacent movie room): "Medical Films That Teach" present a refresher course in fundamental medical problems. Each film subject is produced in the manner of a textbook, profusely illustrated, offering information comparable to that found in postgraduate courses as presented at our leading medical schools. These films review such subjects as *Allergy-Immunology Diagnosis and Treatment, Management of the Failing Heart; Occupational Health Problems, Hypothyroidism: Etiology-Diagnosis-Treatment, Cervicitis: Etiology and Treatment, A Clinic on Deafness, A Clinic on Sigmoid Sinus Thrombosis, A Clinic on Petrositis with Meningitis, Bronchial Catheterization and Bronchopulmonary Lesions, Treatment of the Major Neuralgias, Function of the Ear in Health and Disease, Chronic Purulent Otitis Media, Bronchial Asthma,* and many others. These films are available at no charge to intern groups, hospital staff conferences, limited nurses' groups, and to general medical meetings. This includes projection service at no charge and is arranged through grants for postgraduate instruction.

MERCK & CO., INC., Rahway, N.J. (Booths 53, 54): COBIONE (crystalline vitamin B_{12}) (Merck) which exerts high hematopoietic activity in the treatment of pernicious and various other anemias will be featured. Complete information and literature on COBIONE as well as other Merck products may be obtained from representatives in attendance.

THE WM. S. MERRELL COMPANY, Cincinnati, O. (Booth 104): For prompt symptomatic relief (85 to 90 per cent of cases) of bronchial asthma, Merrell presents NETHAPHYL, combining a more effective bronchodilator, a better tolerated myocardial stimulant, and a mild sedative. An extensive eight-year clinical experience has demonstrated its essential freedom from central stimulation or other side effects, effectiveness in epinephrine-fast cases, no increased tolerance or urinary retention, and noninterference with desensitization therapy. In one study, 87 per cent of patients preferred NETHAPHYL over other drugs.

THE WM. MEYER COMPANY, Chicago, Ill. (Booth 163), invites you to visit us at our booth where, without any obligation whatsoever, we will be happy to demonstrate the very latest in x-ray equipment designed for your requirements. From the lightest portable equipment to 100-100 and tilt table combinations, our forty-five years of experience guarantee your full satisfaction at all times.

THE C. V. MOSBY COMPANY, St. Louis, Mo. (Booth 28): You are cordially invited to visit the Mosby booth, where you will find the latest information on publications of medical science. Your attention is invited to this wealth of new material which will include Slocum *Amputations,* Kantor-Kasich *Handbook of Digestive Diseases,* new edition of Bertwistle *Atlas of Radiographs,* Regan *Doctor and Patient and the Law,* and many others.

THE NATIONAL DRUG COMPANY, Philadelphia, Pa. (Booth 49): PROTINAL POWDER—delicious, micro pulverized, whole protein carbohydrate will be the featured product. Samples and literature will be available. Trained representatives will be on hand to answer all inquiries concerning any of National's vast array of pharmaceutical, biological, and biochemical preparations.

NATIONAL LIVESTOCK AND MEAT BOARD, Chicago, Ill. (Booth 2): Weight control by means of a well planned adequate diet is the theme of the nutrition exhibit of the National Livestock and Meat Board. The value of a liberal amount of meat in the maintenance of normal weight is emphasized. Literature on this subject and general nutrition is available.

THOMAS NELSON & SONS, New York, N.Y. (Booth 5): *Atomic Medicine,* by C. F. Behrens, Editor—the first text written on atomic medicine in the atomic era. *Textbook of Virology,* by A. J. Rhodes and C. E. van Rooyen—a perfect text for student, teacher and practitioner on a vitally important subject. *Gynecologic Diagnosis,* by Robert Tauber—an entirely new approach to gynecologic diagnosis. *Roentgen-Ray Examination of the Digestive Tract,* by Ross Golden—this authoritative monograph also appears in Nelson's *Diagnostic Roentgenology,* of which Dr. Golden is Editor. *Monographs on Surgery,* by B. Noland Carter, Editor—a comprehensive coverage of the year's proved surgical advances. H. H. Moorey, head of Thomas Nelson & Sons Medical Department will be in charge of the exhibit, assisted by C. E. Williams, Field Manager.

ORTHO PHARMACEUTICAL CORPORATION, Raritan, N.J. (Booths 108, 109), cordially invites you to visit their exhibit. Featured will be the ORTHO KIT which consists of a beautiful woven plastic zipper bag containing all of the requisites for conception control. The ORTHO KIT is the ultimate in the esthetic and convenient packaging of contraceptive materials.

PARKE, DAVIS & COMPANY, Detroit, Mich. (Booths 71, 72, 73, 74): You are cordially invited to call at our exhibit featuring the new antibiotic—CHLOROMYCETIN. This antibiotic has been identified chemically, and is the first to be synthesized and produced on a practical basis in pure crystalline form. The exhibit illustrates its chemical properties, pharmacology, and toxicology; the laboratory spectra for susceptible bacteria, rickettsia, and viruses; as well as graphs and tables relating to its therapeutic application. CHLOROMYCETIN represents an outstanding achievement in medical science by Parke-Davis Research Laboratories. Members of the Medical Service Staff will be available for consultation and discussion relating to this new, as well as other well known medical specialties comprising our list. Be assured that your interest will indeed be very much appreciated.

THE E. L. PATCH COMPANY, Boston, Mass. (Booths 99, 100): Representatives will be on hand to greet you and to answer your questions regarding Patch products. Here you will find the new oral form of conjugated natural estrogens with vitamins under the name SESTRAMIN. You will find an interesting demonstration of the new Patch product, ALZINOX, the antacid containing dihydroxy aluminum amino-acetate, and you will want to learn more about the six dosage forms of GLYTHEONATE, Patch brand of theophylline-sodium glycinate. You are cordially invited to drop in for a friendly call.

PET MILK COMPANY, St. Louis, Mo. (Booths 143, 144): A miniature working model of an evaporated milk plant will be exhibited. This exhibit offers an opportunity to obtain information about the production of PET MILK, its use in infant feeding, and the time-saving PET MILK services available to physicians. Miniature PET MILK cans will be given to the physicians who visit the booth.

PHILIP MORRIS & CO., LTD., INC., New York, N.Y. (Booth 137), will demonstrate the method by which it was found that PHILIP MORRIS CIGARETTES, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiologic effects of smoking.

PHYSICIANS & HOSPITALS SUPPLY COMPANY, INC., Minneapolis, Minn. (Booth 46): We invite you to visit our booth for the latest information on outstanding Ulmer products. ULVICAL "ULMER" is an outstanding prenatal, calcium, iron and vitamin supplement giving adequate quantities in a way which your patient is sure to tolerate. PANASAL "ULMER" is a new product for the treatment of rheumatic fever and conditions benefited by salicylate therapy. Our representative present will be very happy to answer any questions regarding these or other Ulmer products.

PICKER X-RAY CORPORATION, New York, N.Y. (Booths 62, 63), will display the motor driven SPOTFILMER table which provides superb facilities for general radiography and fluoroscopy as well as the utmost convenience in spot-film radiography. The new Picker ANGIOGRAPH for cerebral and cardiac angiography, as well as the new PICTRONIC 300 M.A. AT 120 K.V. automatic vertical control will be shown.

GEORGE P. PILLING & SON COMPANY, Philadelphia, Pa. (Booth 129).

PITMAN-MOORE COMPANY, Indianapolis, Ind. (Booth 110): NEOCHOLAN, a brand of dehydrocholic acid compound, phenobarbital, and homatropine methylbromide, will be featured. Exerting two distinct actions, hydrocholeresis and sphincter relaxation, NEOCHOLAN used in conjunction with appropriate dietary measures provides a complete gallbladder regimen in a single tablet. Professional service representatives will welcome you.

THE PROFESSIONAL EQUIPMENT COMPANY, Chicago, Ill. (Booths 40, 41), will exhibit their TABLE COMBINATION RADIOGRAPHIC AND FLUOROSCOPIC UNIT. With this unit the doctor can do both radiography and fluoroscopy in his own office with the patient in either the horizontal

or vertical position. The unit also serves as an examining table. Also on display will be the new PROFEXRAY SUPERFICIAL THERAPY UNIT. Completely new in styling and engineering, this unit has the entire high voltage system, including tube and transformer, enclosed in the powerhead and hermetically sealed.

RARE-GALEN, INC., Harrison, N.J. (Booth 29): Rare Chemicals, Inc. and Galen Company have recently been merged into one organization under the new name of Rare-Galen, Inc. Our exhibit will feature the hypoallergenic detergents ACIDOLATE, DERMOLATE and TERJOLATE in addition to the only Council accepted androgenic preparations, TESTOSTERONE PROPIONATE RARE and METHYL TESTOSTERONE RARE. Also presented will be AQUASPERSE A & D and other vitamin products; new forms of EUCUPIN, long-lasting local anesthetic-analgesic; and SALYSAL, the potent salicylate which does not require the concomitant use of alkalies.

REED & CARNRICK, Jersey City, N.J. (Booths 138, 139): ALRAC and ALRACOMP, important advances in the treatment of peptic ulcers—gastric, duodenal, and jejunal. Other products of Reed & Carnrick research—IROCINE for rapid hemoglobin regeneration without unpleasant side reactions. Ask about the recently synthesized organic iron salt Iron Sodium Malate, catalytically amplified in Irocine. MEPRANE DIPROPIONATE, orally potent, synthetic estrogen, is displayed.

RITTER CO., INC., Rochester, N.Y. (Booths 192, 193, 194), will display and feature new and unique energy-conserving equipment for the general practitioner and specialist; such as Motor-Hydraulically elevated examining and treatment tables with mobile base, also table base equipped with explosion-proof motor; for the ear, nose and throat specialist the MOTOR-HYDRAULIC TREATMENT CHAIR, featuring both patient and operator comfort; TREATMENT UNIT incorporating instrument table, illuminated diagnostic instruments, pressure and suction treatment bottles—includes swinging cuspidor with built-in suction aspirator; PRECISION BONE SURGERY ENGINE for delicate operations such as fenestration, mastoid and sinus, etc.; cabinet type completely automatic instrument sterilizers, incorporating the exclusive Ritter HYDRO-MATIC presterilizing water conditioner and water level control, synchronous timer, and accurate temperature control; office stools, both mobile and tilt types, with vertical adjustments and automatic locking features; SURGICAL PEDESTAL CUSPIDOR with built-in suction aspirator; automatic air compressors for office and clinic use.

A. H. ROBINS COMPANY, Richmond, Va. (Booth 182), is exhibiting its entire line of ethical specialties, featuring the anti-arthritic PABALATE in both tablet and the new liquid form, the recently introduced digestant ENTOZYME, and Robins' new antitussive-expectorant, ROBITUSSIN. Clinical samples and informational literature will be available.

J. B. ROERIG & COMPANY, Chicago, Ill. (Booth 43): Members of the Interstate Postgraduate Medical Association are cordially invited to attend our exhibit. Company representatives will be on hand to extend the courtesies of the Professional Service Department.

RYSTAN COMPANY, INC., Mount Vernon, N.Y. (Booth 25): CHLORESIUM preparations contain the purified, therapeutically active water-soluble derivatives of Chlorophyll "a" ($C_{55}H_{72}O_5N_4Mg$). They are natural, nontoxic biogenic healing and deodorizing agents for the topical treatment of wounds, burns, ulcers, dermatoses and lesions of the intestinal tract; also for healing, decongesting and deodorizing acute and chronic respiratory tract infections; and for the treatment of inflammatory periodontal conditions. These cell-stimulating, biotherapeutic preparations also tend to reduce scar tissue formation and deodorize malodorous conditions by inhibiting the action of proteolytic anaerobic bacteria.

SANBORN COMPANY, Cambridge, Mass. (Booth 97): An exhibit of interest to clinicians, specialists, and research men alike—in the fields of cardiology and endocrinology—will be found at our exhibit. On display will be working models of such clinical diagnostic instruments as the SANBORN METABULATOR, the all-enclosed metabolism tester; and the SANBORN VISO-CARDIETTE, leader among direct writing electrocardiographs. These will be supplemented by information on more specialized, research-type equipment, including the POLY-VISO CARDIETTE, multichannel biophysical research recorder; the ELECTROMANOMETER, outstandingly useful for a wide variety of venous, arterial, intracardiac, and other "pressure" recordings; and other diagnostic instruments even more recently developed.

SANDOZ PHARMACEUTICALS, ***Division of Sandoz Chemical Works, Inc.,*** New York, N.Y. (Booths 165, 166): We invite all physicians to visit our exhibit where we are featuring CAFERGONE tablets (E.C. 110), the first really effective oral migraine treatment. When histamine cephalalgia and tension headaches are impending or under way, CAFERGONE tablets are also indicated. CAFERGONE tablets either check the attack abruptly in the early stage, actually preventing the onset of pain or they interrupt the progress of the attack, markedly shortening it and reducing it in severity. CAFERGONE is available in tablet form only. Among other products displayed are: DIHYDROERGOTAMINE (D.H.E. 45), BELLADENAL, BELLERGAL, MESANTOIN.

W. B. SAUNDERS COMPANY, Philadelphia, Pa. (Booths 11, 12): We invite all doctors attending the I.P.M.A. to visit our exhibit where we will display a complete line of our books including Hyman's *Integrated Practice of Medicine,* Bockus' *Gastro-enterology,* Conn's *Current Therapy,* Custer's *Atlas of Blood and Bone Marrow,* Boerner & Sunderman's *Normal Values,* Friedberg's *Diseases of the Heart,* Meleney's *Treatment of Surgical Infections,* Crile's *Practical Aspects of Thyroid Disease,* Levine & Harvey's *Clinical Auscultation of the Heart,* Fine's *Care of the Surgical Patient,* Lichtenstein's *Neuropathology,* Boies' *Otolaryngology,* and many other new books and new editions.

SCHENLEY LABORATORIES, INC., New York, N.Y. (Booth 217), features TITRALAC, an extremely palatable antacid with a titration curve very similar to that of milk. Also on display will be RUTAMINAL, an exclusive Schenley specialty combining rutin, aminophylline, and phenobarbital; ORAPENS—buffered penicillin tablets of varying strengths; MONOCILLIN, a procaine penicillin product producing 96-hour blood levels; and AQUACILLIN, procaine

penicillin for aqueous injection. Samples of various products will be available. Well-informed personnel will be in attendance.

SCHERING CORPORATION, Bloomfield, N.J. (Booths 31, 32): BUCCAL TABLETS of ORETON, PROGYNON, PROLUTON, and CORTATE with the new base Polyhydrol, will be featured. Developed in the Schering research laboratories, the new Polyhydrol base provides a means of completely utilizing hormones without the necessity of injection. TRIMETON, an outstanding antihistamine and THALAMYD, Schering's brand of phthalylsulfacetamide, a new sulfonamide extremely effective in ulcerative colitis and enteric infections, will highlight the exhibit. Schering representatives will be present to welcome you and will be happy to answer inquiries concerning Schering's new products as well as their other hormone, X-ray diagnostic, chemotherapeutic, and pharmaceutical specialties.

JULIUS SCHMID, INC., New York, N.Y. (Booths 80, 81): RAMSES Physician's Prescription Packet No. 501, RAMSES Flexible Cushioned Diaphragm, RAMSES Diaphragm Introducer, RAMSES Fitting Rings and RAMSES Vaginal Jelly will be shown here. While all enjoy Council acceptance, every one exceeds Council requirements, explaining perhaps why individual physician acceptance constantly increases. All RAMSES gynecologic products are offered for use only under guidance of the physician. All are marketed with the best interest of physician and patient in mind, in accordance with best professional standards.

THE SCHOLL MFG. CO., INC., Chicago, Ill. (Booth 7), presents a new, seamless, tubular gauze bandage that makes dressing limbs, toes, fingers, the head, and breast, simple and fast. It follows the same high standard quality that has won Scholl products an enviable reputation. The complete line of DOUBLE-SEAL ADHESIVES demonstrates unusual adhesive power. DR. SCHOLL'S SHOES and DR. SCHOLL'S ORDER SUPPORTS are designed for the relief of tired, aching feet and pronated arch conditions.

G. D. SEARLE & CO., Chicago, Ill. (Booths 22, 23, 24): You are cordially invited to visit the Searle exhibit, where our representatives will be happy to answer any questions regarding Searle products of research. Featured will be DRAMAMINE for the prevention and active treatment of motion sickness; ALIDASE, for hypodermoclysis; RUPHYLLIN, for abnormal capillary fragility; HYDRYLLIN, new and effective antihistaminic, as well as such time-proved products as Searle AMINOPHYLLIN in all dosage forms, METAMUCIL, KETOCHOL, FLORAQUIN, KIOPHYLLIN, DIODOQUIN, PAVATRINE and PAVATRINE WITH PHENOBARBITAL.

SHARP & DOHME, INC., Philadelphia, Pa. (Booths 18, 19, 20, 21): Visitors attending the I.P.M.A. meeting are cordially invited to visit the Sharp & Dohme exhibit. Stable, portable LYOVAC NORMAL HUMAN PLASMA irradiated to destroy not only bacteria but also the viral contaminants that might cause homologous serum hepatitis merits your attention. Unusual specialties including the popular sulfonamide drugs also will be of major interest. Courteous attendants will be pleased to serve you.

SIEBRANDT MANUFACTURING CO., Kansas City, Mo. (Booth 215), will feature the improved JACKSON BONE CLAMP; PLATE HOLDING CLAMPS; SIEBRANDT UNIVERSAL DRILL, an offset Drill Guide; the DERMOCOTRACTOR—invaluable for suture work; STAINLESS STEEL DEPTH GAUGE; low priced CYCLECISER for passive motion exercises; FINGER TRAP ATTACHMENT, GOODWIN BONE CLAMPS, and a complete line of bone instruments and fracture equipment.

J. SKLAR MANUFACTURING CO., Long Island City, N.Y. (Booth 126): This year, Sklar will present a comprehensive display of STAINLESS STEEL SURGICAL INSTRUMENTS, many of which are new and have never been displayed before at a medical convention. Many of these instruments were designed, developed, and manufactured in cooperation with leading American surgeons. The display will also include Sklar's full line of suction and pressure apparatus, long known and recognized for perfect performance; the ever popular and efficient FRITZ'S AUTOMATIC DRAINAGE AND ASPIRATING APPARATUS; the famous DAVIDSON'S PNEUMOTHORAX APPARATUS; and Sklar's IMPROVED SCHIOTZ TONOMETER.

SMITH, KLINE & FRENCH LABORATORIES, Philadelphia, Pa. (Booth 17): Today, DEXEDRINE SULFATE (dextro-amphetamine sulfate, S. K. F.) is established as the drug of choice for the treatment of depressive states. It produces the desired improvement of mood without giving rise to undesirable side effects. In weight reduction, DEXEDRINE is the most effective drug available for control of appetite. DEXEDRINE makes it easy for the overweight patient to stop overeating. Unlike thyroid, it has no significant effect on basal metabolic rate, blood pressure, or heart rate.

SPENCER, INCORPORATED, New Haven, Conn. (Booth 212): On display will be SPENCER SUPPORTS for abdomen, back, and breasts—individually designed to meet the medical indications of each individual patient. See Spencer's spinal support with removable rigid steels and outside pelvic binder; the ABDOMINAL SPRING PAD (patented) for weakened abdominal muscles; the mastectomy breast support with breast form; and the new SPENCER BLOOD PRESSURE SLEEVE that fits any size arm, provides quick, accurate readings.

E. R. SQUIBB & SONS, New York, N.Y. (Booths 157, 158), will feature new professional specialties. Also on display will be such widely accepted products as CRYSTICILLIN, TOLSEROL, RUBRAMIN, AMNESTROGEN, and the PENICILLIN DISPOLATOR. The representatives in attendance will be pleased to discuss these and other Squibb products with you. Please visit our exhibit.

STEPHENSON CORPORATION, Red Bank, N.J. (Booth 173), will show its latest model of the PORTABLE and HOSPITAL RESUSCITATORS, featuring facilities for lowering operating pressures and mixing air with oxygen as indicated. They will also show the new PHYSICIANS MODEL which, for the first time, makes available to the doctor all the advantages of automatic mechanical respiration as well as aspiration, in a very small attractive case, with a total weight, including tank, of less than 20 pounds. Also shown will be the PROFESSIONAL MODEL, more adapted to the doctor's office or to the small medical clinic.

STETHETRON SALES COMPANY, Wenonah, N.J. (Booth 91), national distributors MAICO ELECTRONIC STETH-

oscope demonstrate Council accepted electronic auscultation. A necessary addition to the modern diagnostic armamentarium. This pocket size unit provides any degree of body sound amplification, overcoming office and street noise levels for the normal ear and compensating for acquired hearing loss often present at the distal ends of the hearing curve. Sound WIRE RECORDINGS of various lesions together with medical history may be made and replayed for comparison.

R. J. STRASENBURGH CO., Rochester, N.Y. (Booth 101): The fungicidal and bacteriostatic properties of NAPRYLATE OINTMENT, POWDER and SUPPOSITORIES, as well as SODIUM CAPRYLATE SOLUTION 20%, in the management of superficial mycotic infections; GEXANE, a newer agent for the control of pediculosis and scabies; METROCIN and its advantages in the medical management of peptic ulcer and as an antacid; the stabilizing and protective role of MAXITATE WITH RHAMNOTIN and MAXITATE WITH RHAMNOBARB in essential hypertension, will be featured.

STRONG COBB & COMPANY, INC., Cleveland, Ohio (Booth 55): Automatic injection of repository penicillin in oil with aluminum monostearate is now available in the disposable AMPIN. Pre-sterilized and ready for immediate use at all times, the AMPIN injection of 1 cc. of crystalline procaine penicillin G, 300,000 units per cc., in peanut oil with aluminum monostearate 2 per cent, is completed in less than one minute. AMPINS of crystalline procaine penicillin G will produce therapeutically effective concentrations in the blood stream for ninety-six hours in approximately 90 per cent of patients treated. See the first automatic injection of repository procaine penicillin G demonstrated and try them for yourself. Subcutaneous AMPINS of emergency drugs will be demonstrated and available for inspection.

SUTLIFF & CASE COMPANY, INC., Peoria, Ill. (Booths 201, 202): As always, we look forward with pleasure to the opportunity of visiting and chatting with those of the medical profession whom it is only our privilege of seeing at the Postgraduate Medical meeting. A greater part of our display will be devoted to the newer developments in the thiocyanate therapy in treating arterial hypertension; also we will have on display other new pharmaceutical preparations.

SWIFT & COMPANY, Chicago, Ill. (Booth 27): The original all-meat baby foods, SWIFT'S MEATS FOR BABIES AND JUNIORS, will be exhibited. These high-protein, body building foods are available in six varieties, beef, lamb, veal, pork, heart, and liver. These products are also widely used for adult special diets. You are cordially invited to discuss with the Swift representatives the clinical research being conducted on strained and diced meats.

TAMPAX INCORPORATED, New York, N.Y. (Booth 140), presents, through colored photographic transparencies, a series of anatomic models sculptured by A. Belskie under the supervision of Robert Latou Dickinson, M.D. Also presented in colored transparencies are two anatomic charts, one showing *Female Pelvic Organs* and the other *Female Reproductive Organs,* both of which were actually executed by Dr. Dickinson. Colored prints of these charts are available at the Tampax booth.

THE TARBONIS COMPANY, Cleveland, Ohio (Booth 175), presents a unique tar extract, 5 per cent (special process), in a clean patient-appreciated form, odorless, greaseless, nonstaining. Its antipruritic, decongestant, remedial properties are of established value in every form of eczema, psoriasis, folliculitis, seborrheic dermatitis, industrial dermatoses, and in other, especially pruritic, disorders. SUL-TARBONIS (TARBONIS with 5 per cent sulfathiazole) provides a combination treatment (see indications above) when infection is a complicating factor. FLEX-STRAWS—a new and revolutionary disposable drinking tube.

U.M.A., INC., New York, N.Y. (Booth 181), will show the COLLENS SPHYGMO-OSCILLOMETER, which is a blood pressure apparatus and an oscillometer combined in one instrument at the extremely low price of $36.00. This unit is probably the most important diagnostic aid in peripheral vascular diseases. U.M.A. THERMOCOUPLE for taking skin surface temperatures is the standard the world over. They will also show the COLLWIL INTERMITTENT VENOUS OCCLUSION APPARATUS which is the accepted simple therapy in peripheral vascular diseases.

U.S. VITAMIN CORPORATION, New York, N.Y. (Booth 70): Exhibit demonstrates the greatest vitamin technicological advance of the present decade—"oil-in-water" multivitamin solutions—includes VI-SYNERAL INJECTABLE which makes available for the first time in pharmaceutical history, an aqueous parenteral multivitamin solution, ready for immediate injection; also, the original oral aqueous multivitamin formula, VI-SYNERAL VITAMIN DROPS—since 1943. Professional samples and literature distributed on these two pharmaceutical "firsts" along with our full line of nutritional specialties, including TRI-SULFANYL, METHISCHOL, VI-SYNERAL CAPSULES, POLY-B, VI-LITRON, HYPERVITAM, LIPO-HEPLEX and others.

THE UNIVERSITY PRESSES, Chicago, Ill. (Booth 114): Distinguished for authoritative content and excellence of editorial work, books from university presses claim enviable rank among nonfiction and technical publications. The Association of American University Presses has arranged an exhibit for your enjoyment at this meeting—and to give you an opportunity to purchase some of the important titles for your library. You will find books from the following university presses: Chicago, Columbia, Harvard, Illinois, Minnesota, Oklahoma, Pennsylvania, Princeton, Stanford, Washington, and Yale.

THE UPJOHN COMPANY, Kalamazoo, Mich. (Booth 209), at the forthcoming Assembly of the I.P.M.A., will feature anticoagulants. HEPARIN, DEPO-HEPARIN, and DICUMAROL are the specific products to be offered for the consideration of the profession. Upjohn representatives will be in attendance to discuss anticoagulants with the physicians.

VANPELT & BROWN, INC., Richmond, Va. (Booth 6), will feature their THEOBARB family for the management of cardiovascular disorders. Of special interest are THEOBARB and THEOBARB SPECIAL with MANNITOL HEXANITRATE. Literature and clinical samples will be available.

VAPONEFRIN COMPANY, Upper Darby, Pa. (Booth 176): An exhibit devoted to the display of Vaponefrin

products which includes VAPONEFRIN and the PHYSICIANS ALLERGIC UNIT for use in bronchial asthma; the VAPOCILLIN RE-BREATHING APPARATUS which is used in combination with VAPONEFRIN and the antibiotics for the treatment of serious respiratory infections; and the DNP UNIT for the treatment of acute and chronic sinusitis.

VARICK PHARMACAL COMPANY, INC., New York, N.Y. (Booths 51, 52), the manufacturers of DIGITALINE NATIVELLE, the original digitoxin, plan an interesting and informative exhibit on heart disease. Of special interest are the phonographically reproduced heart sounds of various valvular lesions. Physicians are cordially invited to sit and listen (via individual ear sets) to the accurate reproductions of many abnormalities, including auricular fibrillation, gallup rhythm, presystolic murmurs, etc. Enlarged full color kodachromes of many gross cardiac specimens and photomicrographs of cardiac pathology will be displayed. Literature and information on DIGITALINE NATIVELLE will be available, including copies of the Low Sodium Diet brochure.

VITAMINERALS, INC., Glendale, Calif. (Booth 4), is exhibiting its complete line of vitamins, minerals, and other important supplements in the successful management of human ills, manufactured under exacting, scientific laboratory controls, formulated from the collective efforts of nationwide clinical experience. Vitaminerals' distributors in attendance will welcome the opportunity of discussing technic and formulas, or any other technical information desired, for the effective use of these outstanding products in everyday practice.

WALLACE LABORATORIES, INC., New York, N.Y. (Booth 8), will present INTRADERM SULFUR SOLUTION and INTRADERM TYROTHRICIN SOLUTION. Representatives will be pleased to arrange for trial supplies for interested physicians.

WALLACE & TIERNAN PRODUCTS, INC., Belleville, N.J. (Booth 92): Physicians are cordially invited to visit the Wallace & Tiernan exhibit where representatives will be on hand to discuss our pharmaceutical specialties. Wallace & Tiernan will exhibit DESENEX, the widely used fungicide, including the new DESENEX FUNGICIDAL SOLUTION; SOTRADECOL, a safe and effective sclerosing agent for the injection treatment of varicose veins; AZOCHLORAMID, a nonsensitizing topical antiseptic; and MONOMESTROL, a highly effective estrogenic preparation for oral or parenteral administration.

WILLIAM R. WARNER & CO., INC., New York, N.Y. (Booth 148), is exhibiting STIGMINENE BROMIDE WARNER, the latest drug in the field of cholinergic therapy. The display will encompass STIGMINENE's parasympathomimetic action from the standpoint of efficacy and safety in abdominal distention, urinary retention, intestinal and bladder atony and experimentally in various neurologic, cardiovascular, gastroenterologic, ophthalmologic, and rhino-otolaryngologic disorders. Representatives will be present to answer queries on this new and interesting drug.

WESTWOOD PHARMACEUTICALS, ***Division of Foster-Milburn Company,*** Buffalo, N.Y. (Booth 79): Westwood places emphasis on the importance of complete independence from soap, for the soap sensitive, or for those with skin conditions which may be aggravated by soap. Only Westwood can assure this soap free regimen with LOWILA CAKE, the only completely soapless detergent in bar form and LOWILA LIQUID, an ethically promoted soapless household cleanser. Westwood exhibits the new improved single-dose disposable applicators for WESTHIAZOLE VAGINAL, the therapy of choice for vaginal and cervical infections. We will be glad to demonstrate the convenience and simplicity of these applicators and to describe the effectiveness of WESTHIAZOLE VAGINAL JELLY in the treatment of trichomonas, nonspecific infections, and the monilias.

WHITE LABORATORIES, INC., Newark, N.J. (Booth 94): At this booth will be an interesting display of this firm's products. Trained Medical Service representatives in attendance will appreciate the opportunity to discuss with you the clinical background and therapeutic merit of the recent products of White's research. You are cordially invited to visit this booth.

WHITTIER LABORATORIES, ***Division Nutrition Research Laboratories,*** Chicago, Ill. (Booth 203): You are cordially invited to attend the Whittier Laboratories exhibit and to register for your complimentary WHITTIER ARTHROMETER. Presented at the booth are CHLOROTHEN, WHITTIER, ARTHRALGEN, ERTRON, INFRON, BEZON, and LAURIUM.

WILCO LABORATORIES, Chicago, Ill. (Booth 216), will feature unusual therapeutic specialties including: AMOLACTIN, a palatable protein supplement in tablet form; CA-LEVUL, supplying the highly assimilable calcium levulinate for calcium therapy; EDREX, a combination of activated ergosterol and alpha-tocopherol as used in the arthritis-fibrositis syndrome; ENZYBEX, a combination of digestive enzymes and multivitamins; METHYGEL, a new colloid bulk laxative in tablet form; and RHINO-THRYCIN, a recently developed vasoconstrictor—bacteriostat and bactericide, for nasal administration in head colds. You are cordially invited to visit our exhibit for more detailed information.

THE WILLIAMS & WILKINS COMPANY, Baltimore, Md. (Booth 174), will exhibit books and journals. Some new books on display will be the new 17th of Stedman's *Dictionary;* Krantz *Pharmacology;* Skinner *Origin of Medical Terms;* Raper and Thom *Manual of the Penicillia,* Turell *Treatment in Proctology,* and many others.

WINTHROP-STEARNS, INC., New York, N.Y. (Booths 115, 116), extends a cordial invitation to visit its booths, where representatives will be on hand to discuss the latest therapeutic contributions made by this firm. Featured will be several animated three-dimensional diuramus highlighting the action of ISUPREL (potent bronchodilator); and SALYRGAN-THEOPHYLLINE (potent diuretic for parenteral and oral use).

THE MAX WOCHER & SON CO., Cincinnati, O. (Booths 57, 58), will exhibit their popular YORK EXAMINING TABLE and YORK INSTRUMENT CABINET, a BECK-LEE ELECTROCARDIOGRAPH UNIT and a SHORT WAVE UNIT. Also, they will have on hand their usual complete display of surgical instruments and sundries.

WYETH INCORPORATED, Philadelphia, Pa. (Booths 106, 107): Two unique panels feature AMPHOJEL and NEOHETRAMINE at the Wyeth display. One describes how the two types of alumina gel contained in AMPHOJEL check pain and gastric corrosion, neutralize hydrochloric acid and supply local protective action. The other panel shows use of NEOHETRAMINE as a safe antihistaminic vehicle in common prescriptions for coughs and colds.

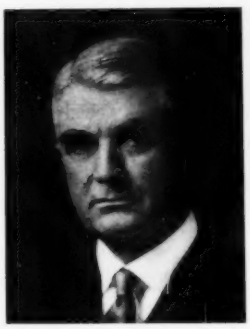
THE YEAR BOOK PUBLISHERS, INC., Chicago, Ill. (Booth 42): A visit to our booth is suggested to all doctors interested in leisurely inspection of up-to-date medical literature. Year Book Publishers will display the newest practical medicine Year Book Series, many new general practice manuals such as Cheney's *Gastroenterology in General Practice,* Cullen & Gross' *Manual of Medical Emergencies,* Boas' *Coronary Artery Disease,* and the new second edition of Page and Corcoran's *Arterial Hypertension.* Volume II—just published—of *Methods in Medical Research* will also be available, as well as other recent additions to the widely-known Year Book Publishers' Monographs.

F. E. YOUNG & CO., Chicago, Ill. (Booth 35), will exhibit YOUNG'S DILATORS, SULF-A-TEST, YOUNG'S PSP TEST SET and YOUNG'S ALBUMIN TEST. YOUNG'S DILATORS are used in the treatment and prevention of contracted anus, particularly following hemorrhoidectomy, as an aid in perineal dissection, and in the repair following delivery. Register for recent reprints. SULF-A-TEST, YOUNG'S PSP TEST SET and YOUNG'S ALBUMIN TEST will be demonstrated. These are accurate, rapid office tests replacing the more time-consuming laboratory methods.

Nu Sigma Nu

STORY OF A MEDICAL FRATERNITY

An unflaunted but continuous and constructive force in the history of medical education has been the activity of undergraduate medical fraternities. Dean of these fraternities, in point of age, is 67-year-old Nu Sigma Nu, founded at the University of Michigan in 1882.



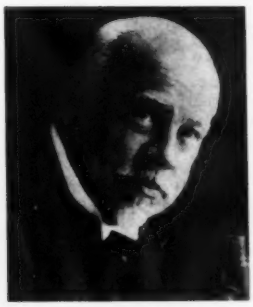
MAYO

In this lifetime of growth, which parallels the memory span of the oldest generation of the medical profession, Nu Sigma Nu has expanded from a group of six medical students on the Ann Arbor campus to an organization of 42 active chapters in the United States and Canada with approximately 22,000 members.

Of interest to the history are the incidents which gave rise to the formal pledging of fraternal vows by the six original members and which are recounted by an illustrious member of the founding group, Dr. William J. Mayo, in the fraternity's published, two-volume history.

CUSHING

According to Dr. Mayo's account, the spark which kindled the fraternal fire at Ann Arbor was touched off by a visiting lecturer in Detroit, Robert Ingersoll, the famed nineteenth century orator, writer and liberal thinker. Ingersoll's lectures at that time, Dr. Mayo tells us, dealt with criticism of the Bible and its teachings.



WELCH

A student in Professor George Frothingham's clinic at the university's struggling hospital sent up a note to Frothingham during the class session, asking permission to miss the next clinic in order to go to Detroit to hear "Bob" Ingersoll. The professor, upon reading this note, launched into a dissertation on the impropriety of calling a man of Ingersoll's stature by the nickname of "Bob." Frothingham had at the time a reputation for atheist convictions, Dr. Mayo explained. His classroom espousal of Ingersoll was too much for a red-haired medical missionary student in the clinic, who jumped to his feet and denounced Frothingham for his "atheistic teaching."

SENN

At that point the rest of the students took over, following a custom that was then in collegiate favor for the quick dispatching of unwanted persons. They seized the missionary and passed him overhead, row to row from the second row to the top of the amphitheater, where the boys in the last row "failed to stop him and he went out through a window and fell into a lilac bush." He was somewhat injured in the fall.

The ruckus created much unfavorable newspaper

First Chapter Group, Nu Sigma Nu Fraternity, 1883, University of Michigan, Ann Arbor, Michigan

Back row: Herman Ostrander, '84; William James Mayo, '83; Charles Marshall Frye, '83; William Warren Johnson, '84; George Albert Haynes, '84; James Martin Postle, '85.

Middle row: Frederick William Main, '84; Sidney Hollister Culver, '84; John Lincoln Gish, '84; Benjamin Grinnell Strong, '83; Charles Everett Rankin, '85.

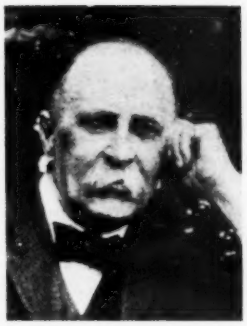
Front row: Charles Wilcox Dodd, '84; Frederick Clark Bailey, '83.

publicity which threatened to break up the medical school. Frothingham and Dr. Donald McLean, one of the great surgeons on the staff, bore the brunt of the attacks. The school as a whole stood by the faculty, realizing that nothing Frothingham had said could be construed into the meaning attributed to him by the press and the churches. Concern over these happenings caused a small group of underclassmen to discuss establishing some sort of medical fraternity which would be interested in furthering scholarship, in improving the teaching, and generally raising medical education to a higher level. The idea bore fruit with the founding of Nu Sigma Nu on March 2, 1882, by Frederick Clark Bailey, Charles Marshall Frye, John Lincoln Gish, William James Mayo, Robert Douglas Stephens and Benjamin Grinnell Strong.

In developing its objectives of elevating the standards of medical education and practice and of rendering service beneficial to students and faculties, the fraternity has evolved several noteworthy projects. Conspicuous are the biennial addresses of the retiring chairmen of the Honorary Council.

A Degree of Merit award, established in 1900, has been bestowed on eleven members for distinguished contribution to the art and science of medicine. Those so honored have been Dr. Victor C. Vaughan, Dr. Gotthelf Carl Huber, Dr. Nicholas Senn, Dr. Frederick George Novy, Dr. William Henry Welch, Dr. J. Playfair McMurrich, Dr. William Hallock Park, Dr. Torald Hermann Sollman, Dr. John Miller Turpin Finney, Dr. Rudolph Matas, and Dr. James Bryan Herrick.

Through a loan, research and chapter improvement



OSLER

fund, individual chapters are aided in carrying out such projects as lectures by visiting doctors, scholarship prizes, undergraduate research awards and debate forums on current problems. Terms of the fund specify that all such projects must be for the benefit of the entire student body of the medical school where the chapter is located.

Among the many illustrious members of the fraternity was Sir William Osler, initiated by the chapter at Johns Hopkins University in 1909. His badge, mounted on a plaque, is now in the possession of the chapter at McGill University, his alma mater.

DELEE

The first American medical officer to make the supreme sacrifice in World War I, Dr. William Thomas Fitzsimmons, for whom Fitzsimmons General Hospital is named, was a member of Nu Sigma Nu at the University of Kansas, class of 1912.

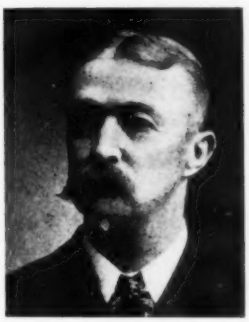
The roster of notable Nu Sigma Nus is long and ever-growing, but no chronicle of the fraternity would be complete without mentioning such names as Dr. Frank Billings, Dr. Robert J. Carlisle, Dr. Harvey Cushing, Dr. Joseph B. DeLee, Dr. George Dock, Dr. William Dock, Dr. John Miller Turpin Finney, Sir William Osler, Dr. Nicholas Senn, Dr. William Henry Welch, and Dr. William S. Halsted.

Government of fraternity affairs is vested in a grand council, consisting of the 42 graduate chapters and the six men on the executive council. From the latter group, one is chosen as executive secretary-treasurer, and this

HALSTED

office has been held over long periods by the same man to insure continuity of administration. Thus, during almost the entire life of the fraternity, there have been just three different men at the helm — Dr. Will Walter, Dr. Ernest Edward Irons, and Dr. Stuart Graves, the incumbent. Dr. Irons, president-elect of the American Medical Association, has held the fraternity post of executive counsellor since 1919.

Nu Sigma Nu celebrated it fiftieth anniversary in 1932 with a two-day program at the University of Michigan which caused the Medical School to suspend classes so that faculty and students could attend the public lectures reviewing the progress of medicine, surgery, public health, and medical education during the fraternity's first fifty years. These lectures were delivered by Dr. L. F. Barker of Johns Hopkins, Dr. Donald C. Balfour of the Mayo Foundation, Dr. William H. Park of the New York City Department of Health, and Dean Frederick G. Novy of Michigan's Medical School.



BILLINGS

During the war years of 1940-1946, conventions of Nu Sigma Nu were suspended, as the majority of members were too absorbed in war service to give time to fraternity work and fellowship. Now, in peacetime, the fraternity has renewed its building on the principles which were established by the venerable generation of men whose vision foresaw its potential force for good.

Photo Credits: Willius and Keys, "Cardiac Classics," C. V. Mosby Company (Herrick); Medical Classics, The Williams & Wilkins Company (Halsted); *Surgery, Gynecology and Obstetrics* (Senn); *Bulletin of the Johns Hopkins Hospital* (Osler); *Journal of Social Hygiene* (Welch); *Annals of Medical History* (Billings); *Bulletin of the Chicago Lying-In Hospital* (DeLee).

New Drugs *and* Instruments

Information published in this department has been supplied by the manufacturers of the products described.

SECLUSION ROOM

PURPOSE: To provide safety, comfort and freedom of movement for the disturbed patient in a mental institution.

DESCRIPTION: The room is completely cushioned with foamed latex covered with latex-coated fabric, and contains a built-in, cushioned bed. It can be cleaned with soap and water. A noninjurious, rubber-mounted screen, eliminating the need for barred grilles, has been developed for the windows. The material that covers the walls, floor, and door deadens sound, so that patients placed in the room, if noisy, do not disturb other patients.

PRODUCER: Firestone Industrial Products Company for Psychiatric Installations, Inc., Cleveland, Ohio. The initial installation was made by the Porter Building Equipment Company of Cleveland.

BEXTRAL

PURPOSE: Solution of synthetic B complex factors for intravenous or intramuscular injection.

COMPOSITION: Each cc. contains:

Thiamine hydrochloride	25 mg.
Riboflavin	5 mg.
Nicotinamide	100 mg.
Pyridoxine hydrochloride	5 mg.
Panthenol (equivalent to 5.8 mg. calcium pantothenate)	5 mg.
Para-aminobenzoic acid	25 mg.

Phenol 0.5 per cent as preservative

INDICATIONS FOR USE: In cases where there is restricted utilization of B complex factors when administered orally or where the patient's condition requires a large supply of these factors available for immediate absorption.

DOSAGE AND ADMINISTRATION: Dosage should be adjusted according to needs and condition of the patient. For severe deficiencies, daily dosage of 1 to 2 cc. will provide a full quota of B complex factors. When Bextral is used with intravenous fluids, addition of 1 or 2 cc. to each liter of infusion fluid or injected into the tubing is usually adequate.

The intravenous route is preferable, but care should be taken to give the injection slowly. If intramuscular administration is employed, some tenderness and induration may be noted in some cases. Aseptic technic should be rigorously adhered to.

CAUTION: To be dispensed only by or on the prescription of a physician.

HOW SUPPLIED: In multiple-dose vials of 10 cc.

PRODUCER: The Central Pharmacal Company, Seymour, Ind.

AUREOMYCIN TROCHES

PURPOSE: Treatment of oral bacterial infections.

DESCRIPTION: Designed to be dissolved in the mouth and exert their action chiefly upon the mucous membrane of the mouth, oropharynx, and upper respiratory tract.

INDICATIONS FOR USE: In mild infections caused by gram positive, gram negative, and other mixed bacterial organisms. Infections caused by streptococci, staphylococci, and pneumococci are commonest of those affected by aureomycin.

DOSAGE AND ADMINISTRATION: In severe mouth and throat infections, the troches should be used in addition to therapeutic administration of aureomycin by means of tablets.

HOW SUPPLIED: In bottles of 25 troches, 15 mg. each.

PRODUCER: Lederle Laboratories Division, American Cyanamid Company, Pearl River, N.Y.

BERUBIGEN*

PURPOSE: Anemia therapy.

COMPOSITION: Obtained by a fermentation process using a streptomyces culture, each cc. contains 10 micrograms of vitamin B_{12} as determined by microbiological assay, preserved with phenol, 0.5 per cent.

INDICATIONS FOR USE: In treatment of pernicious anemia, nutritional macrocytic anemia, macrocytic anemia of infancy, and sprue.

DOSAGE AND ADMINISTRATION: Usual dosage is 10 to 15 micrograms intramuscularly once or twice weekly. Dosage requirements vary with individual patients.

CAUTION: *For intramuscular injection only.*

HOW SUPPLIED: In 10 cc. vials.

PRODUCER: The Upjohn Company, Kalamazoo, Mich.

*Trademark.

AMINOSOL 5% w/v SOLUTION and AMINOSOL 5% w/v with DEXTROSE U.S.P. 5% w/v and SODIUM CHLORIDE 0.3% w/v SOLUTION

DESCRIPTION: These two products supplement Abbott's first modified fibrin hydrolysate solution. Aminosol is made by partial acid hydrolysis of blood fibrin and consists of a mixture of approximately two-thirds free amino acids and one-third small peptides. Each 1,000 cc. of Aminosol 5% represents the equivalent of 50 gm. of protein.

INDICATIONS FOR USE: In medical and surgical conditions in which the body protein is being depleted or has been depleted without possibility of restoring it by feeding.

DOSAGE AND ADMINISTRATION: Intravenously, 20 drops per minute for the first ten minutes, increasing gradually to 60 drops per minute in the next half hour if well tolerated.

CAUTION: Excessively rapid rates of injection may produce nausea, vomiting, venous thrombosis, and fever.

HOW SUPPLIED: Aminosol 5% w/v Solution in 500 cc. and 1,000 cc. quantities, and Aminosol 5% w/v with Dextrose U.S.P. 5% w/v and Sodium Chloride 0.3% w/v Solution in 1,000 cc. quantities.

PRODUCER: Abbott Laboratories, North Chicago, Ill.

MY-B-DEN

PURPOSE: Systemic treatment of pruritus.

DESCRIPTION: My-B-Den (Adenosine-5-Monophosphate, Bischoff) is thought to correct the altered phosphorylation mechanism responsible for pruritus and certain forms of skin disease.

HOW SUPPLIED: In 1 cc. ampules, boxes of 6. Each capsule contains 20 mg. per cc. of the crystalline-free acid as a sodium salt.

PRODUCER: Ernst Bischoff Company, Inc., Ivoryton, Conn.

ORAL MERCUHYDRIN

PURPOSE: Control of edema in cardiac therapy.

INDICATIONS FOR USE: Tablets Mercuhydrin with Ascorbic Acid may be used alone in some instances for maintenance therapy but generally will serve best as a supplement to parenteral administration. For the ambulant cardiac, the oral route facilitates the frequent-dosage schedules of modern diuretic therapy.

PRODUCER: Lakeside Laboratories, Inc., Milwaukee, Wis.

COLORED BARIUM GLASS FOR BIFOCAL LENSES

DESCRIPTION: The new segments duplicate in index, dispersion, and expansion the white glass formerly used. The segments are designed to be more attractive cosmetically and to provide added comfort from ultraviolet and infrared rays when reading in the sun. Currently being manufactured are Tillyer D and Ful-Vues in Calobar D and Cruxite D.

PRODUCER: American Optical Company, Southbridge, Mass.

CHLOR-TRIMETON MALEATE

PURPOSE: Antihistaminic preparation.

COMPOSITION: Each tablet contains 4 mg. of 1-parachlorophenyl-1-(2-pyridyl)-3-dimethylaminopropane maleate or chlorprophenpyridamine maleate.

INDICATIONS FOR USE: Adjunctive therapy in allergic conditions responding to antihistaminic therapy, such as hay fever, vasomotor rhinitis, urticaria, gastrointestinal allergies, drug reactions. Also indicated in many out of the ordinary cases such as tuberculous reactions, transfusion and serum reactions, insect bites, measles, and chickenpox.

DOSAGE AND ADMINISTRATION: Adults—½ to 1 tablet (2 to 4 mg.) three or four times daily. Children, 6 to 12—½ tablet (2 mg.) three or four times daily.

HOW SUPPLIED: Yellow tablets 4 mg. each, scored; bottles of 100 and 1,000.

PRODUCER: Schering Corporation, Bloomfield, N.J.

SYNCURINE

PURPOSE: Muscle relaxant.

DESCRIPTION: Syncurine brand Decamethonium Bromide (C 10) Injection, in doses of 2 to 2.5 mg. intravenously, produces muscular relaxation for major surgery or control of electrically-induced convulsions in psychiatric treatment. The effect of a single injection lasts for fifteen to thirty-five minutes. Further injections of 0.5 to 1 mg. may be given as required.

HOW SUPPLIED: In vials of 10 cc.—1 mg. per cc.

PRODUCER: Burroughs Wellcome & Co. (U.S.A.) Inc., New York, N.Y.

AMES SELFTESTER

PURPOSE: Home testing set for detection of glycosuria.

DESCRIPTION: Each Ames Selftester includes 2 Clinitest (Brand) Reagent Tablets, together with a dropper and test tube in which to make the test. The instructions clearly state the simple procedure, and explain the meaning of sugar in the urine. It provides material for two tests. The Selftester is not intended for diagnosis of diabetes, but to supply the warning signal that sugar is present in the urine, and direct those with glycosuria to their physicians for diagnosis.

PRODUCER: Ames Company, Elkhart, Ind.

VERI-O-PAKE

PURPOSE: Diagnostic x-ray opaque.

DESCRIPTION: As a result of the higher motility and suspension, this product is said to reduce between 25 and 65 per cent the waiting period usually associated with gastrointestinal radiographs. High opacity permits use of a thinner mixture.

HOW SUPPLIED: Manufactured in powder form, packaged in 5 pound cans, 25 pound drums, and 250 pound barrels.

PRODUCER: General Electric X-Ray Corporation, Milwaukee, Wis.

Leaves from a Doctor's Diary

By Maurice Chideckel

September 1 . . . In the course of generations, man, changing the world, failed to change himself. While there are contradictory sentiments and ideas, different likes and dislikes, the basic sexual urges, the desire to look at the opposite sex, is universal among men. Apropos of Paul Ull, a prominent and highly cultured businessman. In his hotel, a room was left open.

He peeped in. A young woman lay nude. Glued to the spot, he looked, then swayed. As he put one foot in, the young and pretty woman opened her eyes and let out an exclamation of surprise. "You are not a gentleman," she protested aloud. He was not taken aback. "Neither are you, from what I saw," he answered.

By that time her husband was returning from the bathroom. Mr. Ull was cruelly beaten and besides two broken ribs and a fractured nose, he was rushed to the hospital with a ruptured gastric ulcer. "I lost myself," he spoke feebly. "It wasn't worth it, was it?" It wasn't. Rimbaud's task that he assigned to poets to change man will never be fulfilled, certainly not in sexual matters.

Saw the first case of macroglossia, hypertrophy of the tongue, in a normal adult woman. It is most likely an inflammatory hypertrophy. Her husband told me he was not at all surprised at the enlargement of her tongue. It never stops working.

* * *

September 2 . . . Today's events: Dr. Lubun's first operation for bilateral cataracts was followed by glaucoma, for which the young ophthalmologist is given credit. Instead of being paid, the patient demands a fabulous sum, or else.

Dr. Sheriff's whole blood transfusion was followed by acute hepatitis. Tim Harley, the patient, died. Today, a scholarly looking man entered my office and said he would like to be enlightened on Mr. Harley's case. How much is the transfusion responsible for his death? Mrs. Harley has a brother, a physician in another town, and I felt sure I was speaking to him.

"You know, doctor," I said, "an icterogenic agent may have been introduced into the blood transfusion, resulting in what you and I call homologous serum, and of course, this may have caused his death. You are Mrs. Harley's brother, aren't you?" He neared the door, as he answered: "No, I am Mrs. Harley's lawyer. Thanks for the valuable information." Then he went out.

For relief of his portal hypertension, John Closter submitted to a postcaval anastomosis. His wife was assured that her husband will never again have high blood pressure. He never will.

* * *

September 3 . . . I am always trying to avoid the bearded mobile medical encyclopedias, Drs. Carrol and Birch, to whom life finds its orbit only in postmortems. The universe of each is in pathology. If you ever see them get into a cultural huddle, shaking bearded chins and fingers, driving home their points of view, you'll never forget them. And when they meet you, they swamp you with floods of erudition. "What have you got here? Any chance for a necropsy?"

I told the two savants that my impression is pneumonic encephalitis, and that my patient is desperately ill. His name? Mark Ferguson. They looked happily at each other, shook their heads and then put their heads together. "At the postmortem we will find uniform cerebral alterations and perivascular hemorrhages," came from one. And from the other: "And a great number of cerebral thrombosed vessels." Then said one: "The P.M. tomorrow at three." "At three," came from the other.

At the stroke of three, they were both standing in the open door of the patient's room; he showed considerable improvement. "Where is Mark Ferguson's body?" both asked simultaneously. "Here," came from Ferguson, "what do you want with me?" Eccentric and confused Dr. Carrol opened his eyes wide. "It's a postmortem—" Then he awoke. "Hm. Outrageous," he remarked. "Unheard of," to which Dr. Birch shook his head approvingly, then added: "The world is full of disappointments. Better luck next time."

* * *

September 6 . . . When Brack and I returned from a large restaurant, where we went to observe the altered behavior of man in the crowd, I came to this conclusion: *In a crowd, or in privacy, there are always aberrations of reasoning under the impact of emotional complexes. Self discipline is, to my observation, nonexistent. Each living person is abnormal. One in one way, another in another way, and each, man or woman, contributes his spark to the mighty*

(Continued on page A-50)